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ABSTRACT

The manpower requirements of industry in Arkansas are being poorly met by the present vocational and technical education system. They have inadequate facilities, and there are not enough students enrolled in trades and industry occupational fields or a broad enough range of programs to meet the variety of requirements from industry, business, and the professions. An estimated 70 percent of the entry-level job opportunities can be handled by high school graduates with an industrial arts or basic education background. However, of the 36,000 graduates and dropouts, less than 2,000 had received any training from trades and industry jobs. There is a need for a state plan organized to reflect manpower needs and education and training requirements of secondary and postsecondary school levels for each socioeconomic area of the State and the entire State. High school programs providing industrial arts education, work orientation, and basic economic education and cooperative work-study programs should be expanded. A checklist of School Industry-Education Advisory Committee activities and services, evaluation guidelines, and the report of the Arkansas Manpower Advisory Council for Economic Development, 1969, are appended. A report on occupational needs and employment projections and a survey of vocational school performance are available as VT 010 561 and VT 010 562, respectively. (BC)

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EVALUATION OF
ARKANSAS VOCATIONAL TRAINING PROGRAMS
IN RELATION TO
ECONOMIC DEVELOPMENT

PART III: EVALUATION OF PROGRAMS AND RECOMMENDATIONS

Prepared for the
ARKANSAS STATE DEPARTMENT OF EDUCATION

By the
Industrial Research and Extension Center
College of Business Administration
University of Arkansas

and the
W. E. Upjohn Institute for Employment Research

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Prepared by the

W. E. Upjohn Institute for Employment Research
Washington, D. C.

May, 1969

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

This is the third report on a three-part study of Arkansas' vocational training needs as they relate to the State's economic development problems. It was undertaken as a result of widespread recognition, by both public officials and private business leaders, that a more carefully planned strategy for vocational education efforts is necessary if economic growth in Arkansas is to reach its maximum potential.

The results of this study are presented in three reports:

Part I - Occupational Needs and Employment Projections
Part II - Survey of Vocational Schools' Performance
Part III - Evaluation of Programs and Recommendations

Special acknowledgement is made to all members of the State and Regional Manpower Advisory Councils, which were organized early in the conduct of this study, for their cooperation, assistance, and enthusiasm throughout the year long project.

The work was carried on in close cooperation with the Arkansas State Department of Education and the State's Employment Security Division; and received the benefit of much valuable assistance from numerous staff members of both agencies. Credit is also due to many other individuals for the advice and encouragement which they provided.

The findings, conclusions, and recommendations contained in this part of the study are primarily those of the author.

Barton A. Westerlund, Director
Industrial Research and Extension Center

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EVALUATIONS OF PROGRAMS AND RECOMMENDATIONS

CHAPTER 1 - SUMMARY

RELATIONSHIP OF SCHOOL VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS AND THE MANPOWER NEEDS OF INDUSTRY

In order for the economy of Arkansas to grow and prosper, to attract new businesses and industries, and to provide its people with the level of skills required by the increasingly sophisticated technology of our times, there is need to expand and improve the present vocational and technical education system of the State. This includes considerable expansion of cooperative work-study programs as well as the adult basic education and vocational training programs for the several hundred thousand Arkansans (25 years of age and over) with less than eighth grade education, or who are unemployed and underemployed. In addition, there is the ever-increasing need to provide new programs of vocational and technical education as determined by the economic and industrial development growth requirements of the State. All youths and adults who need and/or desire such educational and training opportunities to develop and/or improve their competitive abilities in the world-of-work of business, industry, agriculture and the professions should have the opportunity to receive such education.

Conclusions

The manpower needs of industry are being poorly met by the present vocational and technical education system of Arkansas. There are neither sufficient facilities, nor enough students enrolled in trades and industry occupational fields, nor a broad enough range of either programs or skill levels in vocational and technical education offerings to meet the variety of manpower needs of industry, business and the professions, as well as the interests and needs of youths and adults.

There is a deficiency of high school prepared youth for an estimated 70 percent of the entry-level job opportunities in Arkansas which can be handled by high school graduates whose educational background includes Industrial Arts Education and/or basic vocational education. Some 16,000 jobs are projected as available each year in this category, with over 50 percent in the "craftsmen-operative" grouping. Yet, out of the estimated total 36,000 high school graduates and dropouts, fewer than 2,000 had received any preparation for trades and industry jobs. On the other hand, almost 3,000 students completed courses in vocational agriculture, with less than 50 percent estimated as entering employment in that field.

There is also a deficiency of technically prepared youths and adults for the technician and subprofessional job opportunities currently available and projected as being available each year. The net annual deficiency is around 7,500 per year. While the post-high school programs enroll approximately 5,000 students per year, many do not graduate, nor do all enter the occupations for which they were prepared. Furthermore, all the post-high school programs cannot be considered as preparing individuals for technical level jobs. In addition, there is some evidence that a few school programs are producing an excess of trained manpower in certain occupations.

Recommendations

1. Priority in establishing new, and expanding presently offered vocational and technical education programs in the secondary and post-secondary schools should be in the base industry occupational fields of machine and machine tools, metal fabrication, electronics, electromechanics, secretarial and business.

2. Since most youths enter the labor market during their teens (either as high school graduates or dropouts), priority should be given to expanding Industrial Arts, basic vocational education and cooperative work-study courses and programs in the junior and senior high school grades, in either comprehensive or area vocational high schools.

3. Post-high school technical level programs such as those offered by the State Technical Institute and the junior and comprehensive community colleges should be expanded on a planned basis over the next 10 years at an estimated four times the present number of technical level enrollments. The course offerings also need to be expanded in such areas as electromechanics technology, chemical engineering technology, data processing, electronic engineering technology, industrial engineering technology, mechanical engineering technology, biomedical equipment technology and others needed as determined by the State Department of Education in consultation with other state agencies and institutions.

FLEXIBILITY OF THE VOCATIONAL AND TECHNICAL EDUCATION SYSTEM

A flexible and viable system of vocational and technical education for Arkansas should start with basic economic education and Industrial Arts Education (introduction and orientation to the world-of-work programs) in the lower secondary grades, continue through the upper grades of the secondary schools for those students who need, desire and can benefit from the development of basic occupational competencies in broad fields of business, industry and the professions, and continue on through post-secondary school one and two-year programs to prepare selected youths and adults for entry into specific craft and technical level occupations. All the school programs, starting with the lower grades, should progress as a continuum through the highest grade, increasing in complexity and degree of skill level attained by the students, without duplicating or repeating other levels of the school offerings. There should be no competitive duplication of offerings at either the various levels of schools in a community (except for those schools established to meet special needs of students) or in contiguous school districts within easy commuting distance unless there is a demonstrated need for such duplicate offerings.

Vocational and technical education should be supported with a strong program of vocational guidance counseling and job placement services.

For youths and adults with special needs (handicapped and disadvantaged) there should be provided full-time and part-time special and remedial education and vocational training programs.

For youths and adults currently employed and seeking skill upgrading training or development of new skills to permit entry into another field of employment, there should be available evening school intensive, short-term programs of vocational and technical education and training.

Private trade schools and home-study programs should be utilized by the public school system to provide for selected students vocational and technical education courses not offered in the public schools.

The special training needs of expanding businesses and industries, and of new industries locating in Arkansas should be provided by the State Department of Education in consultation and cooperation with the Arkansas Industrial Development Commission.

A major share of the financing of all vocational and technical education facilities and programs should be the responsibility of local communities or regional groups of school districts, with the State Department of Education providing sufficient Federal and State funds as "seed money." Vocational and technical education facilities should be provided on a regional basis so as to meet the population and economic development needs of each of the distinct socio-economic regional areas of the State in order to balance the rural-urban development of the entire State.

Conclusions

The small number of secondary and post-secondary schools offering vocational and technical education, and the small number of students enrolled in such programs in Arkansas are two factors which preclude any effective degree of flexibility and viability in terms of the trained manpower needs of Arkansas.

The State Department of Education is overly committed to the expansion of one type of vocational education institution--the State area post-high vocational-technical schools.

The State Department of Education is assuming too much of the financial burden for vocational and technical education (about 70 percent combined Federal and State funds) with local communities contributing a much lower percentage than that provided by local communities in all but one of the states surrounding Arkansas.

Instructional programs currently being expanded are primarily in agriculture and traditional vocational fields, and very few new programs are being added for training in the newly emerging technologies.

Youths and adults seeking post-high school vocational and technical education are provided limited options because of the small number of course offerings of most of the post-high school institutions.

There is no formal procedure for advising the State Department of Education as to the expansion of plans of industry, or of new industries planning to locate in the State.

Recommendations

1. The State Department of Education should develop policies, plans and criteria whereby local communities (or an association of local school districts in a particular regional area) will be encouraged to expand their vocational education programs as needed, by providing from available Federal and State funds at least two-thirds of the costs of building and equipping a vocational or technical educational facility, and one-half the annual costs of operation.

2. All secondary and post-secondary school vocational and technical education facilities should be large enough to accommodate at least 250 full-time students in any one session, and all such facilities should provide two sessions per day for full-time students. Full use should be made of these facilities each evening for short-term intensive skill development and skill upgrading programs for both employed and unemployed youths and adults.

3. New State area vocational-technical post-high schools (which are funded 100 percent by the State Department of Education) should not be built until student capacities are expanded in the existing schools and a greater variety of programs, particularly those dealing with base industries are provided in each such school. Furthermore, plans for any new area vocational-technical post-high schools should be coordinated with plans for establishing a comprehensive community college in a particular regional area. If any post-high school institutions already exist in a particular

regional area, priority consideration should be given to improving and expanding their technical education programs before new post-high school facilities are built. Urgent action is needed to correct the situation of only one school offering a fairly extensive variety of courses. Furthermore, only three courses connected with basic manufacturing operations are offered in most of the 15 schools.

4. A variety of vocational educational experiences need to be offered to more students. Local school districts and high schools should be encouraged to arrange this with fund assistance provided by the State Department of Education. These educational experiences should be offered through cooperative work-study programs, and agriculture and homemaking extension programs to include units of instruction dealing with trades, industry and the professions.

5. All secondary schools throughout the State should be encouraged by the State Department of Education, with allocations of available Federal and State funds, to provide a full program of Industrial Arts Education. Planned junior and senior high schools should be required to offer Industrial Arts Education.

6. Immediate action should be taken to triple the number of qualified vocational and job placement counselors in the secondary and post-secondary schools of the State. Supervisory vocational guidance counseling staff in the State Department of Education must also be employed in sufficient numbers to provide needed leadership and services to the local schools and school systems.

7. A formal procedure should be developed between the State Department of Education and other relevant agencies whereby current information will be provided the Department as to industry expansion plans and establishment of new industries throughout the State. The State Department of Education should develop added procedures for the dissemination of such information throughout its relevant divisions. Local schools and school systems should be able to cooperatively plan for provision of any special manpower training programs which may be required by these expanding and new industries. All such special programs should be conducted under the auspices of the Division of Industry Services, State Department of Education in conjunction with the Arkansas Industrial Development Commission.

Other recommendations contained throughout this report are also relevant to improving the flexibility and viability of the vocational and technical education system of the State.

INDUSTRY INVOLVEMENT IN VOCATIONAL AND TECHNICAL EDUCATION

The most effective and viable vocational and technical education programs are those which are conducted by educational facilities and programs closely linked in a formal structure with representatives of business, industry, labor, and the professions. The Arkansas State Department of Education recognizes this fact, and has established industry-education advisory committees for all the programs in each of the State area post-high vocational-technical schools and the State Technical Institute. The education department has also encouraged the formation of such committees for other secondary and post-secondary vocational and technical education programs. Outstanding examples are the Metropolitan High School (Little Rock) and Westark Junior College (Fort Smith).

Conclusions

Many secondary and post-secondary schools (except the State area schools) throughout the State which offer vocational and technical education programs either have not established industry-education advisory committees, or, if they have, utilize them to little or no extent.

Recommendations

1. All Industrial Arts, vocational and technical education programs receiving Federal and/or State funds should be required to establish industry-education advisory committees.

2. The State Department of Education, in cooperation with the newly established State Advisory Council on Vocational Education, should establish a Statewide system of vocational and technical education advisory councils and committees along the following lines. This system is to provide the services to local schools, school systems, etc., as described in the text of this report.
   a. State Advisory Council on Vocational Education
      (1) Regional Advisory Councils on Vocational Education for each socio-economic regional area of the State
      (2) Subcommittees for each major industry, business and professional group within the State
   b. Regional Advisory Council
      General Advisory Committee for each school district or each school and
      Occupational Advisory Committees for each program offered by the school

3. The full-time paid staff of the State Advisory Council on Vocational Education should be responsible for: a) providing staff services, guidelines and programs of action for the State, Regional, General and Occupational Advisory Councils and Committees, b) establishing reporting requirements, and c) developing procedures for continual coordination of activities and programs of the advisory groups with the public and private vocational and technical education system of the

State, as well as with other government and non-government agencies involved in manpower development, industrial development, education and training.

STATE DEPARTMENT OF EDUCATION RESEARCH AND PLANNING FOR VOCATIONAL AND TECHNICAL EDUCATION

The role of the Division of Vocational, Technical and Adult Education of the Arkansas State Department of Education may be stated as: a) developing a Statewide system of vocational and technical education to meet the needs of its people and its economy (overall and distinct socio-economic area needs), b) assuring an educational and training system that will provide the kinds of well-educated, well-prepared manpower as its industries, businesses and professions may require at any time, c) developing criteria, standards of performance and guidelines for use by local and area-wide schools for providing high quality vocational-technical education and training programs at minimal costs to the communities and the State, d) providing leadership, technical assistance, coordinative, consultative, legislative, planning, evaluative and research services dealing with all facets of the vocational and technical education system of the State, including initiation of proposals and conducting, coordinating and supervising experimental and demonstration projects and studies, and e) seeking and obtaining necessary funds from all available sources, and allocating these funds to provide the vocational, technical and adult education and training programs required by the State, its communities, and its regional areas. Where local communities or regional areas of the State are unable to contribute sufficient funds, as determined on the basis of an equitable sharing formula for State and local support, the State Department of Education must meet these local and area needs by assuming, if necessary, the full burden. Furthermore, the State Department of Education should publish and disseminate its State Plan for Vocational Education and establish criteria, standards, etc., affecting vocational and technical education.

To function as described above, the State Department of Education must provide adequate curriculum specialist, supervisory, and planning and research staffs.

Conclusions

There is a definite lack of research and planning staff available to the Division of Vocational, Technical and Adult Education.

To provide all the services described, the State Department of Education has one professional staff person for health occupations, one for distributive occupations, one for business occupations, and two for trade and industrial education (which includes Industrial Arts Education). Another staff member serves as Director of Industry Services and also supervises the above listed staff. It should be noted that there are seven professional staff members for agriculture education and six for homemaking education.

There is a Vocational Education Research Coordinating Unit, consisting of two professional staff members, funded by the State Department of Education, but administered by the University of Arkansas.

A number of studies and research projects have been and are being conducted by special commissions, study groups and the University of Arkansas (Vocational Education Department of the School of Education) independently of the State Department of Education. They receive little more than superficial assistance or involvement from the Department, but do have an impact on vocational and technical education. Discussion of the findings and recommendations of these various studies are also given minimal attention by the State Board for Vocational Education, judging by the contents of the official minutes of the meetings of the State Board. This seeming inattention arises not from lack of interest or concern by the staff, but sheer lack of time to become involved in matters other than those dealing with day by day operations and assistance to local schools and school systems throughout the State. Because there is only one professional staff member for each of the major areas of vocational education (except agriculture and homemaking), lack of any planning--short or long-range--is completely understandable.

The only published document concerning State Department of Education plans for vocational and technical education is the State Plan required by the U. S. Office of Education. The minimal information required in these State Plans provides little insight into the problems and programs of vocational and technical education in any particular state, or the Nation.

Recommendations

1. In providing the State Department of Education with a modest research and planning capability, the first step should be the transfer of the Vocational Education Research Coordinating Unit from the University of Arkansas to the State Department. Additional planning and research staff should be added as soon as possible to conduct needed research, to develop criteria and standards for operation of vocational and technical education programs, to obtain funds and to supervise or conduct experimental and demonstration projects. First priority should be given to coordinating the various research findings resulting in recommendations to develop a vocational and technical

education system for Arkansas on a regional area basis, and to so structure the vocational supervisory staff of the State Department.

2. The State Department of Education and the Advisory Council on Vocational Education should pool their available research and planning funds. This would allow them to conduct, on a joint basis, all needed research and development of plans, particularly those which will obtain additional funds from every available source to help develop, improve and expand the vocational and technical education system for the State.

3. Immediate priority should be given to conducting an experimental and demonstration project utilizing mobile traveling educational facilities for providing basic literacy and vocational education to youths and adults in rural areas.

4. The State Department of Education should obtain special data gathering and interpretive services which can best be provided by economists, demographers, educators and other behavioral scientists and manpower specialists of the University of Arkansas, other colleges and universities, and the State Employment Service.

5. To achieve more effective supervision, to provide a higher quality of service, and to better meet the vocational and technical education and training needs of the State, it is imperative that more curriculum specialist and supervisory staff be added to those units of the Division of Vocational, Technical and Adult Education which deal with counseling, business education, health education, distributive education, Industrial Arts Education, and trades and industry education.

INDUSTRIAL PLANT LOCATION AND THE ROLE OF VOCATIONAL SCHOOLS

Industrial and economic developers, management consultants, and industrial organizations are giving greater attention to the human aspects of plant site location than in the past, according to a recent report of the American Industrial Development Council. An article in their current journal[1] shows that greater emphasis is being placed on the quality and training of the community labor force, as well as the available facilities for such training. The report cited the following findings:

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[1] Louis K. Lowenstein, "New Factors and Facets of Industrial Location," A. I. D. C. Journal, July 1968 (Boston: The American Industrial Development Council).

1. A 1968 San Francisco Chamber of Commerce survey disclosed that 58 percent of the respondents anticipated difficulty in securing qualified people in the future. Although skilled workers were in greatest demand, it is interesting to note that 25 percent of the respondents expect a shortage of competent professional and managerial workers. The quality of newcomers to the labor force, too, was subject to criticism, with over half the respondents stating that the community's high school graduates were inadequately prepared for meeting industry's needs today. The outstanding deficiency, according to the respondents, was a lack of proper vocational skills.
2. The Regional Planning Commission of Los Angeles County, in a recent study, "Industrial Location Factors Study," found that "labor skills inadequate" ranked third in a list of 17 factors reflecting dissatisfaction by industrialists of their present location site. The factor "labor skills not available" was ranked sixth as the reason for 10 percent of the respondents planning to relocate outside the city.
3. In a study of Jersey City, New Jersey, by Arthur D. Little, Inc., 63 percent of the respondents stated that some types of skilled employees were presently in short supply; the most frequently mentioned were machinists, electricians, operators, welders, maintenance men, printers, and office assistants.
4. In a 1965 study of San Francisco by Arthur D. Little, Inc., it was found that when companies moved to the Bay area, they typically enlarged their labor force, increasing their skilled employment as much as 46 percent.

The relationship of the above findings to vocational and technical education schools and programs are made apparent in a study of factors influencing 206 companies to locate new plants in Colorado, New Mexico, Arizona, Nevada, Idaho, Utah, and Wyoming since 1960.[2] Since most of these companies were divisions of national companies, which had plants in a number of locations throughout the United States, the responses to questions concerning vocational education can reasonably be assumed to reflect corporate thinking generally, and have applicability to Arkansas.

The companies included in the study were grouped into the following categories:

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[2] Ernest H. Dean, Implications of Vocational Education for Plant Site Location, U. S. Office of Education, Washington, D. C., May 31, 1967 (Grant No. 4-7-068498-0408).

Electronic--Electrical and Refrigeration

Metal Fabrication and Plating

Machine Shop Products

Foods, Feeds, Minerals, Chemicals, Fertilizers

Clothing

Plastics, Rubber Products, Synthetics, Paper, Maps

Wood Products and Construction Products

Mobile Equipment and Machinery

Health Equipment and Supplies, Jewelry, Hobby, Recreational Equipment and Supplies

Through questionnaires and interviews with top executives of the companies participating in the study, a number of conclusions were reached with respect to the relationship of vocational education to industrial development.

1. Of 28 different plant site selection factors, availability and quality of vocational education ranks approximately fourteenth in degree of importance.
2. The electronic, electrical, refrigeration, metal fabrication and plating, and clothing manufacturers reported vocational education as being more significant than did the other categories of manufacturers.
3. Companies with 100 or more employees place greater significance on vocational education than do smaller organizations.
4. Very few manufacturing companies indicated that a lack of vocational education facilities would be a sufficiently significant enough factor to cause them to reject an otherwise desirable plant site.
5. The closer a vocational school is located to a plant site, the more significant it is as a plant site location factor. Twenty miles was considered the optimum distance.
6. Those manufacturers who consider vocational education as a plant site factor consider the training of skilled craftsmen, technicians, and semi-skilled workers very important, and rate community attitude toward vocational education as significant.
7. In-plant training conducted by vocational educators did not warrant the same degree of importance as did programs in the vocational school setting.
8. The five most mentioned kinds of vocational education needs were, in rank order:

   a. machine shop
  *b. metal fabrication
  *c. electronics
  *d. business and secretarial
   e. electrical

9. In lieu of vocational education, employers either do their own training, or seek assistance from other agencies. Some select a site if the vocational school agrees to train the company's labor force.

10. Approximately 25 percent of the respondents actually visited vocational schools when considering the selection of their plant sites.

11. Publicly supported schools were preferred over private schools as factors in the plant site selection process. In order of preference, the public schools are universities, colleges, community colleges, junior colleges, and high schools with strong vocational programs.

12. Plant site selectors find it helpful to have brochures listing the vocational education programs in the state, as well as the programs available at the community level.

The findings and conclusions of the report point out the significant contributions which vocational education and educators can make in assisting industrial development agencies to persuade manufacturers to locate in particular states and communities. The relevancy of each of the specific conclusions of the report to the problems and programs of Arkansas should be studied by all agencies and groups concerned with the economic development of the State.

Recommendations

Following are several suggestions for action:

1. Vocational education at both the high school and post-high school (technical) levels must be expanded for base industry occupations.
2. Local community and/or regional area leadership involvement in vocational and technical education must be exhibited to new plant site locators. A suggested means to this end is to make sure that the brochures published by the individual schools, describing their programs, are well printed and include the names, titles and organizational affiliations of all occupational advisory committees cooperating with each school.

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*Note: All three received the same number of mentions; therefore, all may be considered as ranking second.

3. A publication describing the vocational and technical education system of Arkansas should be prepared, which would include all institutional programs in the State--public and private. This publication should also include information as to special training programs to be available to new and expanding industries by the new Division of Industry Services of the State Department of Education, as well as programs for the disadvantaged and unemployed. Names, titles and organizational affiliations of members of the State Advisory Council on Vocational Education and the State Board of Vocational Education should be included.

CHAPTER 2 - MAJOR RECOMMENDATIONS

CONCERNING SCHOOL PROGRAMS DESIGNED TO MEET THE INDUSTRIAL MANPOWER NEEDS OF ARKANSAS

1. A State Plan for Vocational Education and Training should be developed and published annually by the State Department of Education. The Industrial Research and Extension Center of the University of Arkansas should cooperate in this planning effort by providing the socio-economic and occupational data needed by the State Department of Education; and by assisting the Department in interpreting the data in terms of planning the occupational programs and courses to be offered at the secondary and post-secondary school levels. It is expected that the Arkansas Employment Service will have the primary responsibility for preparing detailed analyses of manpower needs by industry, occupation, skill levels and regional areas. The Arkansas Employment Service was given this responsibility in a contract with the State Department of Education according to provisions of the 1968 amendments to the Vocational Education Act of 1963.

2. The State Plan for Vocational Education should be organized so as to reflect manpower needs and educational and training requirements at the secondary and post-secondary school levels for each socio-economic regional area of the State as well as the State as a whole. The long-range objective of the vocational-technical education system of the State, as reflected in the State Plan, should be the consideration of the total requirements of each regional area for all facets and levels of vocational and technical education for youths and adults in terms of their needs as well as the needs of the economy. This objective should take into account population mobility, its levels of educational attainment, and economic development prospects.

3. It is the expectation that sufficient funds will not be available at any time in the near future to provide for all the vocational and technical education and training needs of the State, priority in establishing new, and expanding presently offered school programs at all levels of the public school system should be in the base industry occupational fields of machine and machine tools, metal fabrication, electronics, electro-mechanics, and secretarial and business. Furthermore, since it is estimated that 70 percent of the entry-level business, sub-professional and industrial job opportunities can be met by high school graduates who have been provided Industrial

Arts Education--courses in orientation to the world-of-work and experiences in handling and operating various types of tools and machinery, including development of attitudes and behavior in the work place, and basic economic education--long-range priority should be given to providing funds for such programs in the junior and senior high school grade levels. This type of program should be expanded in the secondary schools of Arkansas to include at least 15,000 more students than are presently enrolled. Guidelines for curricula in the field of Industrial Arts are available from the U. S. Office of Education and should be used by the State Department of Education and local schools in planning such programs.

4. Cooperative work-study programs should be conducted in every high school in Arkansas, and expanded to include at least 3,000 students more than the 1,500 presently enrolled. In rural areas, the public agencies--including the schools themselves--should be utilized as employers. Major program expansion should be in trades and industrial occupations. Fortunately for this particular program, the 1968 Amendments to the Vocational Education Act of 1963 provides funds to reimburse employers for the extra costs they may incur through participation in cooperative work-study programs.

5. To meet the annual projected manpower needs in the technical occupational job categories, presently existing and projected through 1980, post-high school technical education facilities and programs for business, industry and the subprofessions must begin to expand immediately until, within the next decade, enrollments are at least four times the present number. If the State area post-high vocational-technical schools are to provide technical level education and training they will have to plan, long-range, to up-grade skill level objectives of many of their courses to those expected of the Technical Institute and comprehensive community college graduates. While the State Technical Institute is a residential school offering two-year programs for the most part, the curricula are of the type and level which can serve as models for other post-secondary institutions offering technician education programs. Westark Junior College also offers some technical level programs, in fields other than those covered by the State Technical Institute which could well be emulated. However, neither school offers two educational programs, outlined below, which illustrate high level technical education programs designed to meet the manpower needs of new types of industry and the subprofessions predicted for rapid growth throughout the United States. The curricula outline is included herein as a possible guide to State Department of Education and other technical education program planners.

a. Electromechanical Technology - 2 years
(Oklahoma State University)

First Semester

Unified Physics Concepts
Circuit Analysis
Mechanics
Technical Report Writing
Physical Mathematics
Electromechanical Devices

Second Semester

Introductory Electromechanical Systems
Mathematical Analyses
Applied Physics Concepts
Electronics
Mechanical Analysis

Third Semester

Social Science
Electronic Logic Circuits
Mechanics and Dynamics
Control Devices
Electromechanical Systems

Fourth Semester

Social Science
Communication Skills
Electromechanical Design
Automatic Control Systems
Electronic Communications

b. Bio-Medical Equipment Technology - 2 years
(Springfield Technical Community College, Mass.)

First Semester

Math
Basic Electricity
Electronic Devices
Bio-Medical Techniques
English

Second Semester

Bio-Medical Measurements
Electronic Circuits
Electronic Amplifiers
Bio-Medical Techniques
English

Third Semester

Bio-Medical Measurements
Trouble Shooting
Bio-Medical Electronic Systems
Bio-Medical Techniques
Sociology

Fourth Semester

Economics
Bio-Medical Transducers/Telemetry
Bio-Medical Techniques
Elements of Speech
Bio-Medical Design/Equipment Selection

6. Those who leave school at every level of the education system, particularly those who drop out of high school before graduating, should be provided experiences, education and training so that they have some degree of marketable skill which will enhance their employability status. While Industrial Arts programs in the junior and senior high school grades can contribute some marketable skills, the high schools also should offer a variety of business, trade and industry, and other vocational programs in specific occupational areas as recommended above for those students who plan to enter the labor market after leaving high school. These programs should be planned primarily for 11th and 12th grade students. Lower grade students, particularly potential dropouts, should be enrolled in these courses if deemed desirable and feasible. At present no special training programs and facilities of this type are available.

High school level vocational education programs could be patterned after many of the present vocational courses currently offered in the State area post-high school vocational-technical schools, since these schools, for all practical purposes, have been established to remedy the lack of high school vocational education programs throughout most parts of the State. The combination of program offerings in the high schools--Industrial Arts and trades and industry vocational education--and cooperative work-study programs, should help in reducing the extremely high number of high school dropouts each year. This same combination of courses and facilities available in the high schools throughout the State should also be offered to the disadvantaged through adult evening school programs.

7. Occupational education and training programs, from junior high school level through the comprehensive community college, should be supported with a strong program of vocational guidance and job placement designed to meet and serve the best interests of the individual. To achieve this objective will necessitate three times the number of guidance counselors presently employed in the secondary and post-secondary schools. Furthermore, any presently employed or new guidance counselors brought into the schools should be given intensive world-of-work training so that they will be able to provide effective vocational counseling services. Other strategies, such as using speakers from industry, counselors of the State Employment Service, Career Fairs, etc., should be used by the schools to provide the students with information concerning job and career opportunities.

8. The State Plan for Vocational Education must be reviewed annually. Plans should be indicated for the following year and the next four years concerning the facilities and programs to be initiated, expanded, curtailed or discontinued, for full-time, part-time and special needs (handicapped and disadvantaged) youths and adults. Representatives of industry and other concerned governmental agencies and organizations should determine, region by region, whether the enrollments and graduates in each type of school, for each type of program at each level of skill training are sufficient, short, or in excess of the estimated manpower needs of the economy. In conducting these annual reviews, allowances should be made for the training programs conducted by private trade schools, employers and the in-migration of skilled manpower from other states. These allowances show that the public educational system is not the sole source of trained manpower for the State's economy.

CONCERNING THE IMPROVEMENT OF THE FLEXIBILITY AND VIABILITY OF THE VOCATIONAL AND TECHNICAL EDUCATION SYSTEM OF ARKANSAS

1. A flexible and viable vocational and technical educational system for Arkansas should offer such programs in all the secondary and post-secondary schools of Arkansas including the junior and community colleges and 4-year colleges equipped to offer special occupational education programs. The system should begin with economic education and Industrial Arts for all

students in the lower secondary grades as introduction and orientation to the world-of-work, continue through the upper grades of the secondary schools for those students who need, desire and can benefit from the development of basic occupational competencies in broad fields of business, industry and the professions, and on through post-secondary school one-year and two-year programs to prepare selected youths and adults for entry into specific craft and technical level occupations. All programs are to be articulated with each level of school preceding or following the particular level at which it is offered in order to avoid duplication and repetition of courses. There should be no competitive duplication of offerings at either the various levels of schools in a community or in contiguous school districts within easy commuting distance unless there is a demonstrated need for such duplicate offerings.

For youths and adults with special needs (handicapped and disadvantaged) there should be provided full-time and part-time programs based on the characteristics and needs of the individuals and individual groups served. Special institutions and programs such as Skill Centers, residential schools and mobile traveling educational facilities for basic literacy and basic vocational education should be provided for special needs youths and adults as well as for youths and adults in rural areas in which such school programs cannot be made available.

For youths and adults currently employed and seeking skill upgrading training, or development of new skills in different fields of employment, intensive, short-term programs of vocational and technical education and training should be provided in evening classes by the secondary and post-secondary schools in Arkansas.

In those regional areas where the public high schools do not or cannot provide vocational and technical education programs desired by individuals or small groups of individual full-time students, the school system should contract with private schools which do offer the courses desired in that area. If there are no available private trade schools, consideration should be given to the use of vocational and technical education home-study courses designed for use in cooperation with public schools, such as those developed by the American School, Chicago, Illinois. The local school system should pay the tuition costs for the private trade schools and home-study courses, supervise the programs and evaluate their effectiveness, and determine the desirability and feasibility of eventually incorporating them into the school's program of offerings.

The special training needs of expanding businesses and industries, and of new industries locating in Arkansas should be provided for by the State Department of Education in consultation and cooperation with the Arkansas Industrial Development Commission and the employers concerned.

Financing of all vocational and technical education facilities and programs should be shared by local communities or regional areas on a formula basis requiring local funds for at least one-third for building and equipping the facility and at least one-half for annual operation of the facility and its programs in order to obtain Federal and State funds. Any community or regional area which needs vocational education facilities and can demonstrate its inability to provide its share of finances in accordance with criteria established by the State Department of Education is not to be denied the needed facility and/or programs.

While the above recommended system is in many essentials consistent with the philosophy and objectives of the State Department of Education, and the basis for the system is already in existence, it will be necessary to adopt major changes in policy, plans and priorities (some published, some unpublished) now governing the development of the vocational and technical education system for the State if the desired flexibility and viability is to be achieved. Some of these changes are indicated in the recommendations dealing with other aspects of vocational education contained elsewhere in this report.

2. The State Department of Education should develop policies and plans whereby local school districts and/or groups of school districts provide a major share of the funds for the vocational and technical education programs at the secondary and post-secondary levels conducted in their communities. If local communities were to have provided 50 percent of the total funds to be spent in 1968 (instead of 32.7 percent), an additional sum of over $1.5 million would be available for expanding vocational and technical education programs throughout the State. The State Department of Education should use the funds available from Federal and State sources as "seed money" to encourage local school districts, or a consortium of local school districts in a particular regional area, to establish, expand and improve the vocational and technical education facilities and programs in their communities and for the regional areas in which they are located. A suggested formula is for the State to provide (through State and Federal funds) a maximum of two-thirds of the costs of building and equipping a facility, and a maximum of one-half of the costs of annual operation. High school level programs would be tuition free for full-time students and for special needs youths and adults in the evening school programs. Post-high school level programs would charge a tuition fee to partially cover their share of the annual operating costs. All evening school programs for employed personnel would charge a tuition fee to recover costs of instruction. The share of monies provided by the State Department of Education would assure compliance by the local school districts (or consortium) with standards and criteria established by the State Department of Education.

It is further recommended that at such time as local school districts (or a consortium) develop a regional-wide vocational and technical education program, any State area vocational-technical schools located in the region be transferred to the local school governing unit for their operation. Until such time, present tuition charges should be increased to $50 per quarter for full-time students for a total of $200 per year instead of the present $20 per year. Under present operating policies for student enrollments, the additional income for each State area vocational-technical school would be $40,000, approximately 18 percent of the total annual operating costs. This additional tuition would free approximately $400,000 of the State and Federal funds which could be used for needed salary increases to instructors and directors, and the employment of additional guidance and job placement counselors in the schools as well as curriculum specialists and supervisors for the State Department of Education. The suggested increase in tuition fees would still be considerably less than tuition paid by some 3,000 Arkansas private trade school students. However, for those students who cannot pay the tuition fees, in part or whole, the State Department of Education should be authorized to establish a scholarship loan fund for students requiring financial assistance to enroll and remain in school.

3. The State post-high school area vocational-technical schools should serve as pivotal facilities in the regional areas in which they are located to provide vocational programs to selected high school students in the area, as well as technical programs of one and two years duration for post-high school students. In those regional areas where the need is greatest for high school level programs, the State area schools should move in the direction of such programs. In those regional areas where technical education is most needed, the State area schools should upgrade the skill levels of their programs, looking forward to the time when they will become part of the offerings of a junior or comprehensive community college.

4. All secondary school and post-secondary school area vocational and technical education program facilities should operate on a two-session day for a total full-time student enrollment of 500 students per school, with a minimum of 250 in any one session. Thus, the present State area vocational-technical schools should not only expand their facilities to enroll 250 students per session, instead of 200, but should also operate on a two-day session basis for full-time students instead of a single session. Facilities operating at less than the recommended full-time student capacities should be studied in terms of possible incorporation into the local school district system (or a consortium of local districts) for their use as an area high school and post-high school vocational-technical education facility.

5. New State area vocational-technical schools at the post-high school level should not be built until student capacities are expanded in the existing schools and a greater variety of programs, particularly those dealing with base industries, are provided in each school. Furthermore, plans for any new area post-high school vocational-technical education and training

facilities should be coordinated with plans for establishing comprehensive community colleges. All these plans should provide for short-term and long-range goals and should be published after approval by regional advisory councils for vocational education (to be discussed later), the State Advisory Council and the State Board for Vocational Education as part of the annual State Plan for Vocational Education. The proposed delineation of regional areas throughout the State, as contained in the report, "A Long Range Plan for the Establishment of Community Colleges in Arkansas," prepared for the Commission on Coordination of Higher Educational Finance, could serve as the basis for establishing workable socio-economic areas for the purposes of providing vocational and technical education facilities in accordance with the needs of each area. If circumstances dictate, however, that the vocational education needs of high school students and/or graduates and industry in a particular geographic area can be met in no other way during the next five years or so except by establishing a State area post-high vocational-technical school, or if the technological demands of industry in an area are such as to indicate that during the next five years or so there will be no need for the level of education offered by comprehensive community colleges, consideration should be given to the establishment of State area post-high vocational-technical schools in such areas.

6. While the State post-high school institutions offer a number of short-term evening school skill development programs for employed adults in the occupations in which they are employed, programs should also be provided for employed adults who may desire to learn skills and trades to enter a new occupational field. Emphasis of such new program offerings should be in those occupations required by expanding and new industries. Furthermore, if there are a number of disadvantaged individuals in the area served by the school, a percentage of the training slots should be made available to these individuals.

7. Assuming that the State Legislature will appropriate funds to make the Division of Industry Services of the State Department of Education operational, special training programs to be offered for industries expanding or planning to locate in Arkansas should be planned cooperatively with the Arkansas Industrial Development Commission. When desirable and feasible, the special training programs might be conducted by individuals and organizations on a contractual basis, rather than by the staff of the State Department of Education or the public school system. Decisions for such contractual arrangements should be made jointly by A. I. D. C. and the State Department of Education. Availability of such special training services for new and expanding industries should be widely publicized.

8. The high schools throughout Arkansas offer very little in the field of vocational education other than agriculture and business (mainly typing and shorthand). Since it is the high school level occupational education program backgrounds which are required for a large majority of the entry-level jobs in business and industry, it is recommended that high school administrators take immediate action such as that indicated below. This, or equivalent, action will provide students with highly varied, flexible and viable programs of vocational education until more suitable facilities and needed funds become available to achieve the long-range types of programs recommended elsewhere in this report. The following actions require minimal expenditures by local school districts since Federal funds are available, through the State Department of Education for full or partial reimbursement.

a. Arrange with post-high school facilities in the area to enroll selected 11th and 12th grade students for vocational and technical education courses. These students should be admitted to sessions not filled to capacity with post-high school students. Bus service between the "home" school and the vocational facility should be provided for these students.

b. Expand the cooperative work-study programs in grades 10, 11 and 12, particularly in trades and industry occupations. Additional instructor-coordinators will need to be employed (at least one to each 30 students).

c. Establish new and expand existing Industrial Arts Education programs in urban junior and senior high schools so that all students, male and female, are provided orientation courses to the world-of-work. Funds for such programs are available from several Federal laws. Only one Federal law has been "tapped" by the State schools.

d. Provide Industrial Arts Education program experiences in rural high schools by expanding the agriculture instructional program to include units of instruction and equipment dealing with trades and industry. The instructors will require special in-service training in preparing themselves to teach these new units.

e. Expand Homemaking courses in rural high schools to include instructional units in industry, health, and commercial food service fields. The instructors will require special in-service training in preparing themselves to teach these new units.

f. All new high schools to be built throughout the State should be required to provide Industrial Arts Education programs for all students, and to provide vocational education programs either as part of that school program or in cooperation with an area vocational school within easy commuting distance.

The ability of local school districts to undertake the above actions will depend, of course, on the willingness of the State Department of Education to provide needed State and Federal funds which are currently committed primarily to post-high school programs of vocational and technical education, and, under present policies will be committed more to the State area post-high vocational-technical schools.

9. Expenditures for expansion of presently offered programs or the initiation of new programs in the post-secondary institutions should be concentrated on base industry occupational courses. There should be a variety of options at various skill levels offered youths, and adults in the post-high school(s) in a particular regional area. Urgent action is needed to correct this situation: Only one school offers 45 percent of the total number of courses in 15 post-high school facilities, and three courses connected with basic manufacturing operations are offered fairly extensively in these schools.

10. When planning new or expanded facilities and programs for each regional area, the 21 public post-high school institutions and the 13 private colleges should be considered as part of the State and regional vocational-technical education system. The public post-high institutions are identified as offering vocational-technical programs and receiving Federal and/or State funds. The private colleges are not trade schools, but do offer vocational-technical education. The facilities of these institutions, as well as those of the private trade schools, the courses offered, student enrollments and graduates must be taken into consideration in the development of the annual State Plan for Vocational Education.

CONCERNING INDUSTRY INVOLVEMENT AND PARTICIPATION IN VOCATIONAL AND TECHNICAL EDUCATION

1. A new State Advisory Council on Vocational Education, including a large number of industry representatives, has been recently appointed by Governor Rockefeller in accordance with provisions of the Vocational Education Act of 1963 Amendments of 1968. This Advisory Council is charged with the responsibilities of evaluating vocational education programs and services, advising the State Board on the development of policy matters, assisting in the preparation of the State Plan (annual and long-range), and recommending research and demonstration projects. The Advisory Council must also hold at least one public meeting each year. To assist the State Advisory Council in obtaining needed information and to assure due consideration of all industry and regional area needs for vocational and technical education, it is recommended that the State Council establish Regional Advisory Councils whose membership would be representative of business, government, industry, labor, educational and economic development organizations within each region, along the order of the Regional Manpower Advisory Councils for Economic Development which participated in this study. It is further recommended that the active members of these Regional Manpower Advisory Councils be appointed to the new Regional Advisory Councils on Vocational Education.

In addition to the Regional Councils, the State Advisory Council should appoint subcommittees representing major industrial, business and professional interests of the State to keep it advised of the manpower and educational needs of these groups.

2. Occupational Advisory Committees should be appointed for each vocational and technical education and training program by all secondary and post-secondary schools offering such programs. These Occupational Advisory Committees should report to a General School Advisory Committee for Vocational Education (or Technical Education as the case may be). Membership of the Occupational Advisory Committees should consist of individuals familiar with the skill needs and job requirements of the occupation for which the students are being prepared by the school, and who are responsible for employing and supervising staff in their organizations in that occupational category. Membership of the General School Advisory Committee should consist of large company plant superintendents and personnel directors, small company employers, and labor representatives from the community.

Junior and senior high schools offering Industrial Arts Education programs only, should appoint a General School Advisory Committee which will also function as an Occupational Committee. Membership should include representatives from several industries and businesses at the level recommended for the Occupational Committees.

3. The full-time paid staff of the State Advisory Council (Federal funds of from $50,000 to $150,000 are to be provided for staff and operating costs of the State Council) should provide staff services and guidelines for the Industry Subcommittees and the Regional Councils of the State Council. Local school staff should provide staff services to the General School Advisory Committee and the Occupational Advisory Committees in each school. The Occupational Committees will report their actions, evaluations and recommendations to the General School Advisory Committee, which will in turn report to the Regional Advisory Councils. Reports of these Councils will be submitted to the State Advisory Council, which in turn will submit its reports to the State Department of Education, the State Board for Vocational Education, the Governor, and the National Advisory Council on Vocational Education.

4. The services to be provided to the schools by the Occupational Advisory Committees are outlined in Appendix A in the form of a recommended guideline checklist to be used in reporting their activities to the General School Advisory Committee. These services include assistance to the school officials in designing new and revising currently offered curricula, and determinations as to skill levels to be attained by students enrolled in a particular course, etc.

5. To assist Occupational Advisory Committees in conducting evaluations of specific vocational and technical education programs, it is recommended that staff of the State Advisory Council and the State Department of Education use (in some revised form as to be determined) the Evaluation Guideline developed for use in this study (see Appendix B). Copies of the evaluation reports of the Occupational Advisory Committees should be provided to the school affected, the School General Advisory Committee, the Regional Advisory Councils, and the State Advisory Council. Evaluations of all vocational and technical education programs must be made annually for each school if Federal and State funds are to continue to be received by that school.

6. The Regional Advisory Councils should review all reports received from the General School Advisory Committees in their geographic areas, consolidate findings and recommendations and suggest priority matters for consideration by the State Advisory Council. Periodic meetings for all the General School Advisory Committees in the region should be convened by each Regional Advisory Council to exchange information about schools, and to determine any action which should

be taken to improve vocational and technical education facilities and programs. Information concerning manpower and economic development in the area should be provided.

7. The staff of the State Council should arrange to have members of the Regional Councils and the State Council appointed to boards and committees of the various other organizations and governmental agencies in the State that deal with manpower and economic development. The staff of the State Council should also arrange to receive all reports and studies dealing with these matters and distribute them to the State Council members. During the State Council meetings, the implications of these reports and studies on vocational and technical education should be discussed and recorded. Cooperative and coordinated action arrangements should be developed between the State Council and other organizations involved in developing programs for education, training, manpower and economic development.

8. Some of the specific activities by the State Advisory Councils, its subcommittees and Regional Councils (in addition to those responsibilities dealing with the State Board for Vocational Education and the State Department) should be to:

a. conduct a Statewide campaign to encourage employers to participate in local school cooperative work-study programs

b. conduct a Statewide campaign to persuade employers to pay higher entry-level wages and salaries to graduates of vocational and technical education programs than are paid to new employees without such background

c. conduct a Statewide campaign to involve a large number of employers in providing vocational guidance counseling services to schools, including regional Career Fairs, visits to businesses and factories, etc.

d. conduct a Statewide campaign to encourage high school students to enroll in vocational programs in high schools and continue on in post-high school institutions

e. conduct a Statewide campaign to persuade employers to encourage employees to enroll in evening school skill upgrading programs and basic literacy programs, offered by local schools and school systems

f. conduct a Statewide campaign to encourage more employers to participate in the improvement of the vocational and technical education programs of their local schools and school systems

g. conduct a Statewide campaign to persuade employers to register all their job vacancies with the State Employment Service so that the various manpower agencies including the State Department of Education can be provided meaningful and relevant data concerning manpower needs

h. assist the State Department of Education in developing a system of record keeping which will accurately report vocational and technical education enrollments, dropouts, costs and graduate placements in secondary and post-secondary schools, and conduct a Statewide program of assistance to local schools and school systems to maintain such a record keeping system

i. conduct a Statewide campaign to persuade local employers, in cooperation with schools and other educational and training groups to provide skill development and upgrading education and training programs in their plants, individually or in consortium, for specific worker groups and for groups of disadvantaged individuals.

It should be noted that all of the recommended activities for the State and Regional Advisory Councils and the various advisory committees are to be conducted in cooperation with the State Department of Education and the local school and school system officials. Both at the State and local levels, the advisory groups are to be recognized as instrumentalities whereby the educators can mobilize industry and community leadership support for the improvement and necessary expansion of vocational and technical education facilities and programs. The advisory groups should recommend action, and cooperate with the educators in the conduct of approved activities, but should not engage in activities which the educators consider either undesirable or unsupportable. When differences of opinion as to action to be taken arise, the advisory groups might well continue their efforts to persuade the educators as to the desirability of their recommendations.

The findings and recommendations report of the Arkansas Manpower Advisory Council for Economic Development is included as Appendix C. This report indicates the effectiveness of industry-education advisory councils and committees. Analysis of the Advisory Council report and the supporting evidence provided in this report, including reconciliation of any conflicting recommendations, should be the first agenda item of the State Board for Vocational Education.

CONCERNING PLANNING AND RESEARCH NEEDS OF THE STATE DEPARTMENT OF EDUCATION FOR VOCATIONAL AND TECHNICAL EDUCATION

1. As an immediate move to provide the State Department of Education with a planning and research capability, the Vocational Education Research Coordinating Unit, funded by Federal and State funds and located at the University of Arkansas, should be transferred to the State Department of Education and operated either as a unit of the Division of Vocational, Technical and Adult Education, or the Research Division of the Department. Additional research and planning staff should be added as soon as possible to plan and prepare proposals, and engage in or contract for needed research.

2. The State Department of Education and the State Advisory Council on Vocational Education should pool funds to be made available to them in accordance with provisions of the 1968 Amendments to the Vocational Education Act of 1963 for conducting research and developing plans. These two groups should engage in joint projects of research and planning, and should jointly use resource people such as (economists, demographers, educational consultants and other behavioral scientists).

3. Mobile traveling educational facilities are recommended as the most immediate research and demonstration project in which the State Department of Education should become involved. The use of these facilities should provide basic literacy and vocational education for youths and adults in rural areas of the State. This project has been under consideration for two years, but no action has been taken primarily due to lack of planning and supervisory staff rather than funds. This project should be coordinated with others dealing with disadvantaged youths and

adults being conducted as part of the Concentrated Employment Program in 15 rural counties, and the U. S. Office of Education funded Basic Literacy Project of the University of Arkansas.

4. The State Department of Education should arrange for such data gathering and interpretive services as can be obtained from the University of Arkansas, its Industrial Research and Extension Center, and the State Employment Service.

5. All members of the State Advisory Council on Vocational Education and the State Board for Vocational Education should receive information concerning the initiation and progress of all studies and projects conducted in Arkansas which deal with education, training manpower development, economic development, organization of the school system, etc. The vocational research and planning staff of the State Department of Education should participate in these studies and projects and assure complete coordination of the efforts of the study groups so as to eliminate unnecessary duplication of time and money. The reports of these studies and projects should be discussed and analyzed at meetings of the State Advisory Council and the State Board for Vocational Education in terms of their short and long-range implications to the vocational and technical education system of the State. The annual report of the State Advisory Council should reflect such considerations.

6. Development of the annual State Plan for Vocational Education should be the responsibility of the research and planning staff of the Division of Vocational, Technical and Adult Education in cooperation with the supervisory and specialist staff of the Division.

7. To achieve more effective supervision, to provide a higher quality of consultative and curriculum development services to local schools and school systems, and to better meet the vocational and technical education and training needs of the State, it is imperative that more supervisory and specialist staff be added to those units of the Division of Vocational, Technical and Adult Education dealing with counseling, business education, health education, distributive education, industrial arts education, and trades and industry education.

8. The vocational and technical education supervisory and specialist staff should be assigned to operate on a regional basis, instead of a Statewide basis. For the present, supervision of regional areas might well be assigned to the directors of the State area post-high vocational-technical schools where they now exist. For those regional areas which do not have such schools, regional directors should be appointed by the State Department of Education and arrangements be made to physically locate these regional directors in a suitable local school. The Regional Directors should report directly to the State Director of Vocational, Technical and Adult Education.

APPENDIX A

CHECKLIST OF ACTIVITIES AND SERVICES OF SCHOOL INDUSTRY-EDUCATION ADVISORY COMMITTEES

For School Year 1967

This Checklist is based on the book, Industry and Vocational-Technical Education, by Samuel M. Burt (New York City: McGraw-Hill Book Company, 1967).

NOTE: The word "industry" is used herein to include representatives of business, manufacturing, labor, agriculture, etc., including the professions, other than education. By definition, industry-education advisory committees include representatives from industry and education.

1. School Name:____

   Address:____

2. School Principal's Name:____

   Telephone Number:____

3. Advisory Committee Title (Full Title):____

   ____

   Check one of the following:

   ______General Advisory committee for entire occupational program of school.

   ______Departmental advisory committee for a group of related occupational education programs or courses. List programs or courses.

   ____

   ____

   ____

   ______Occupational committee for a specific industry occupation or cluster of related occupations for which a single program or course is offered.

4. Date current Committee was appointed:____

5. Number of Committee members:

   a. from industry______
   b. from education_____

6. Dates and average attendance of appointed Committee members at last three Committee meetings (if current Committee has not met three times, include meetings of previous committee. Do not include number of guests in attendance). Attach copy of minutes of last two meetings.

Meeting Dates	Average Attendance of Representatives from Industry	 Education
(a)		
(b)		
(c)		

7. Committee Chairman:

   Name:______________________________

   Organization:______________________________

   Title:______________________________

   Address:______________________________

   Telephone Number:______________________________

8. Does the school provide a staff member who is responsible for maintaining a continuous liaison with the Committee. If so, fill-in:

   Name:______________________________

   Title:______________________________

9. Does Committee serve this school and

   (a) other schools in the area Yes_____No_____
   (b) full-time day school and evening program Yes_____No_____
   (c) public school as well as private school, MDTA, and other programs, or Yes_____No_____
   (d) full-time day school program for this school only Yes_____No_____

10. Are Committee members listed in school's catalog of program and course offerings Yes_____No_____

11. Does Committee receive regular mailings from the school concerning education, training, manpower and economic development programs, problems and progress Yes_____No_____

12. Have any Committee members who represent industry organizations attended, during the past two years:

- (a) any professional vocational-technical conferences and conventions Don't Know____ Yes____No____
- (b) visited other schools within the country, the state or outside the state Don't Know____ Yes____No____
- (c) served on the local, regional, state or national committees dealing with education, training, manpower development, juvenile delinquency or economic development Don't Know____ Yes____No____

CHECKLIST OF ACTIVITIES AND SERVICES PROVIDED BY INDUSTRY-EDUCATION ADVISORY COMMITTEES

(Please check appropriate items only in the following chart. Any available special reports describing the activities and services provided by the Committee should be attached.)

	Last School Year	Current School Year	Planned For Next Year
A. Student Recruitment, Selection and Placement			
1. Encouraging young people (and parents) to consider vocational and technical education and training through visits to "feeder schools," speeches to civic clubs, career day meetings, etc.			
2. Assisting in the screening of students applying for admission to the courses.			
3. Participating in the development of aptitude tests for selection of students.			
4. Providing information concerning desirable aptitudes, educational, and experience background which applicants for entry level jobs should have so that educators may properly plan their student recruitment, as well as educational and training programs.			

	Last School Year	Current School Year	Planned For Next Year
A. Student Recruitment . . . (continued.)			
5. Arranging plant or field trip visits for students and counselors.			
6. Providing vocational guidance literature to teachers, counselors, and students.			
7. Assisting and participating in surveys of local industry manpower needs.			
8. Assisting in the development of aptitude tests, achievement tests, certification and licensing tests concerned with initial employment of school graduates.			
9. Placing students in part-time work during school year or summer vacations.			
10. Placing school graduates in jobs.			
B. Instructional Program			
1. Assisting in the preparation and review of budget requests for laboratory and shop equipment and supplies.			
2. Evaluating physical conditions, adequacy of equipment, and layout of laboratory or shop.			
3. Assisting in the development and review of course content to assure its currency in meeting the changing skill and knowlledge needs of the industry.			
4. Obtaining needed school equipment and supplies on loan, as gifts or at special prices.			
5. Assisting in the establishment of standards or proficiency to be met by students.			
6. Assisting in the development of school policy concerning the kinds and volume of production work or "live jobs" to be produced by students so that this work will be of instructional value in the educational program			

	Last School Year	Current School Year	Planned For Next Year
B. Instructional Program - (continued.)			
7. Establishing and maintaining a library of visual aids, magazines, and books concerning industry.			
8. Assisting in the development of special educational and training programs conducted with funds made available by the Manpower Development and Training Act and the Economic Opportunity Act, etc.			
9. Assisting in the development of evening school skill improvement and technical courses for employed plant personnel.			
10. Assisting in the development of apprenticeship and on-the-job training related courses.			
11. Arranging plant or field trip visits for teachers.			
12. Providing sample kits of raw materials, finished products, charts and posters, etc., for exhibit and instructional purposes in classrooms and shops.			
13. Assisting in the establishment of student fees and charges for courses and programs.			
C. Teacher Assistance			
1. Providing funds to assist local teachers to attend regional and national meetings of industry and teacher organizations.			
2. Arranging meetings of teachers to establish cooperative relationships between the schools and industry.			
3. Arranging summer employment for teachers.			
4. Assisting in the establishment of teacher qualification requirements.			

	Last School Year	Current School Year	Planned For Next Year
C. Teacher Assistance - (continued.)			
5. Conducting clinics, and in-service and out-service training programs for teachers.			
6. Arranging for substitute or resource instructors from industry to assist regular teachers.			
7. Subsidizing teacher salaries in such unusual cases as may be necessary to obtain qualified instructors.			
8. Paying industry organization membership dues for teachers.			
9. Providing awards and prizes to outstanding teachers.			
D. Student Recognition			
1. Providing scholarships and other financial assistance for outstanding graduates who wish to continue their education and training.			
2. Providing prizes to outstanding students.			
E. Public Relations			
1. Providing speakers to address trade and civic groups concerning the industry's education and training program in the school.			
2. Providing news stories concerning school programs to magazines published for specific industry group.			
3. Providing news stories concerning school program to local news media.			
4. Attending meetings in support of vocational and technical education which may be called by local and state school officials, boards, and legislative groups.			

	Last School Year	Current School Year	Planned For Next Year
E. Public Relations - (continued.)			
5. Participating in radio and television programs designed to "sell" vocational and technical education to the public.			
6. Contributing funds to advertise specific school occupational education and training programs.			
7. Advising employees and their families concerning school programs by posting the information on bulletin boards, news stories in company publications, and enclosures in pay envelopes.			

Signature of Individual who Answered Questions

Committee Title

Date

APPENDIX B

ARKANSAS STATE MANPOWER ADVISORY COUNCIL FOR ECONOMIC DEVELOPMENT

Evaluation Guidelines for Occupational Education Programs

School Name: ____________________

Address: ____________________

Grade Levels: ____________________

Type of School: ____________________

Title of course or program evaluated. (If more than one course is offered in the program, list all the courses.)

____

____

____

Name of Department Head, if any: ____________________

Name of instructor(s): ____________________

____

____

Names and Company Affiliation of Members of Advisory Committee	Year Appointed to State Advisory Committee
Chairman:	

Signed ____________________
Chairman of Committee

Date of Evaluation ____________________

Instructions for Use of Guideline by Evaluators

This Guideline has been developed for the use of Occupational Advisory Committee members in arriving at qualitative judgements concerning their effectiveness of a school's educational and training program which has been designed to prepare young people for a job in the same or related occupations for which they employ or supervise personnel. Your, and their, experience in your industry, business, factory, or profession, provides the background for evaluating the school's program.

The procedure for conducting the evaluation is really very simple. Each committee member should have a copy of this Guideline, but only the chairman's need be filled in. After filling in the identifying information on the cover sheet of the Guideline, the committee members will visit the school shop and classrooms in which the occupational education program you are evaluating is being taught. The instructor and students will be expecting you. The committee members will observe the physical conditions, the adequacy of the training equipment, and the students at work. They will examine projects of students, the course outlines, and other records as suggested by the starred (*) items of the Guideline. They will discuss the statements contained in the Guideline with the instructor and form opinions concerning the relevancy of these statements. They will talk to several students to obtain information from them as indicated in the Guideline.

If there is more than one instructor for the program, the committee will want to meet with all the instructors, preferably as a group. In order to provide minimal interference with the instructor's supervision of his class, it is suggested that while you are examining records, course outlines, etc., the instructor need not be with you at his desk or in his office.

After the committee completes its visit with the instructor(s), they will return to the office or room assigned for use of the evaluators, and check the appropriate column for each statement on the Guideline. Any pertinent comments should also be recorded.

The committee will want to discuss their findings and reactions before filling in the Guideline. While only one Guideline form should be provided for each occupational education program, if there is a difference of opinion among the committee members, on any specific items, these differences should be noted in the comments. It is recommended that copies of the completed Guideline be made for use by the directors or principal of the school, and for the committee's files for follow-up purposes.

It is also possible that one or more members of the Regional Manpower Advisory Council for Economic Development will be with the committee as observers and visitors to the school. However, while they will not be participating in the evaluation process, they will be interested in the findings.

The entire evaluation process should not take more than three hours. The completed evaluation guideline should be given to the school director for mailing to the Regional Council Chairman.

Check Appropriate Column as t
Extent to Which Statement at Le
Applies

A. PHYSICAL FACILITIES

	Fully	Large Extent	Partial	Minimal	Not at all
1. The shop area is safe in terms of:					
a. safe movement of students					
b. instructor's office space					
c. sanitary facilities					
d. individual and group instruction					
2. The storage facilities for supplies, hand tools and small equipment is adequate.					
3. The equipment is well laid-out in terms of industry usage.					
4. Adequate protection is provided against fire, toxic gases and dust.					
5. Walls, ceiling, floor and booths are in good repair and appropriate for the shop.					
6. Suitable and convenient sanitary and first-aid provisions are available.					
7. Lighting is appropriate for each working area of the shop.					
8. Classroom furniture, blackboards and audio-visual equipment are appropriate for the instructional program.					
9. Utility outlets are adequate in terms of placement and number.					
10. "Housekeeping" of the shop area is at maximum level.					
11. Safety lanes are well-marked.					

COMMENTS: (Note extent to which any inadequacies have been reported to the school administration and/or advisory committee, and action taken or planned.)

Check Appropriate Column as to Extent to Which Statement at Left Applies

B. EQUIPMENT, TOOLS AND SUPPLIES

	Fully	Large Extent	Partial	Minimal	Not at all
*1. For the largest class assigned the shop, the number of pieces of equipment, benches, booths and other work stations are adequate in terms of instructional objectives.					
2. The equipment is sufficiently up-to-date in terms of appropriateness to current industry usage.					
*3. The amount and quality of expendable supplies and materials utilized is appropriate in terms of industry usage.					
4. All the equipment and tools are maintained at operating effectiveness at all times.					
*5. A schedule of preventive maintenance is utilized.					
6. Equipment, tools and supplies loaned or donated by industry are appropriate for the instructional program.					
7. Hazardous equipment, and/or any parts, are properly painted and provided with safeguards which are in place and utilized by the students and instructor.					
*8. A schedule of equipment and tool acquisition, cost, depreciation and replacement is maintained.					
*9. Control systems are maintained for the toolroom and stock room.					

COMMENTS: (Note extent to which any inadequacies have been reported to the school administration and/or advisory committee, and action taken or planned.)

*Review records maintained by instructor or department head.

Check Appropriate Column as to Extent to Which Statement at Left Applies

C. THE STUDENTS

(Note: Several students should be selected at random and interviewed by evaluators)

	Fully	Large Extent	Partial	Minimal	Not at all
1. The students in the shop are clothed as they would be expected to dress on-the-job in industry.					
2. All the students elected the course.					
3. All the students were selected on the basis of aptitude and interest in the program.					
4. All the students are provided individual and group counseling as to the variety of job opportunities - locally, regionally and nationally - which may be available to them after graduation.					
5. All the students are aware of the skill levels they will attain in terms of entry-level jobs, working conditions and wages in industry for the occupations in which instruction is being provided.					
6. Individual records of progress are maintained for each student and he is aware of his progress at all times.					
7. All students belong to one or more of the national clubs dealing with industry or business.					
*8. Follow-up records are maintained on those students who have either dropped out or graduated from the program, and are used in helping revise course content, etc.					
9. All students are aware of the need for and availability of continuing education and skill improvement programs after completing the course.					
10. All students qualified for and desiring to enroll in the course are able to do so without regard to personal or family financial difficulties or transportation problems.					
*11. Graduates of program receive higher wages or salaries upon initial employment than do new employees on the same job who did not graduate from the school course or program.					

*Review records maintained by instructor or department head.

Check Appropriate Column as to Extent to Which Statement at Left Applies

C. THE STUDENTS (continued)	Fully	Large Extent	Partial	Minimal	Not at all
*12. All students are provided the opportunity to acquire some skills on all the equipment in the shop.					
*13. All students are provided experiences and evaluated for performance in:					
a. production assembly for a reasonably long period of time					
b. quality-control techniques					
c. supervisory and production control record responsibilities					
d. being interviewed for a job					
*14. Nationally or statewide standardized achievement tests are used, to the extent available, for evaluating student performance and knowledge acquired in the occupational field.					
15. Special remedial instruction is provided all students in need of such assistance.					
16. All students desiring to do so, are provided the opportunity to change their course or program.					
*17. All students are provided instruction concerning employer-employee relationships and fellow-worker relationships.					
*18. Employers considering hiring a student or graduate are provided information as to the student's performance while in school.					
19. All students are provided an opportunity for paid cooperative school-work experience.					

COMMENTS: (Note extent to which any inadequacies have been reported to the school administration and/or advisory committee, and action taken or planned.) Use reverse side for comments.

*Review records maintained by instructor or department head.

Check Appropriate Column as t
Extent to Which Statement at Le
Applies

D. INSTRUCTIONAL PROGRAM

	Fully	Large Extent	Partial	Minimal	Not at all
*1. The instructional program is based upon and organized around a careful analysis of the skills and knowledge required for successful performance in an occupation or related cluster of occupations.					
*2. The instructional program is designed to develop such skills and technical knowledge for beginning workers as are justified by the manpower needs and opportunities for employment in the labor market area served by the school.					
3. The instructional program provides the opportunity for experiences in and orientation to related occupations and industries even though there may not be employment opportunities in the labor market area served by the school.					
*4. The instructional program is reviewed indepth by an industry advisory committee at least once every year, and revised to the extent possible, as may be recommended, in major divisions and units and completion time allowances.					
5. The instruction program provides for individual differences in ability and progress.					
6. The instructional program is an integral part of the school in that provision is made for occupationally oriented academic and technical courses of recognized high quality.					
7. The course of study provides for sequential development of skills and knowledges, based on previous school offerings, as well as subsequent education and skill development programs available upon course completion.					
*8. In addition to repetitive practice, a sufficient number of projects are provided to encourage and develop creativity and problem solving abilities.					

*Review records maintained by instructor or department head.

Check Appropriate Column as to Extent to Which Statement at Left Applies

D. INSTRUCTIONAL PROGRAM (continued)

	Fully	Large Extent	Partial	Minimal	Not at all
9. The course of study was and is being developed in light of the accepted philosophy and mission of occupational education for the particular grade level or school offering the program.					
*10. Consumer, leisure and economic education is an integral part of the occupational education program.					
11. A reference library of industrial and business magazines and books is available and utilized by students on both an assigned and program enrichment basis.					
*12. Cooperative work-study programs are planned and supervised by the instructor in cooperation with employers.					
13. The following instructional materials and aids are available and used on a planned basis:					
a. occupational monographs					
b. plans, blueprints, drawings, specifications and instruction sheets of the type used in industry					
c. typical samples of completed projects by students and from industry					
d. models and mock-ups					
e. educational television					
f. programmed instructional materials and equipment					
g. correspondence school materials					
h. films, slides and movies					
i. other					

*Review records maintained by instructor or department head.

Check Appropriate Column as t
Extent to Which Statement at Le
Applies

D. INSTRUCTIONAL PROGRAM (continued)

	Fully	Large Extent	Partial	Minimal	Not at all
14. Demonstrations of new techniques, equipment and materials by industry people are a regular part of the planned instructional program.					
*15. Visits to offices and plants in the area are a regular part of the planned instructional program.					
16. Production of "live-work" for school or community use is accepted only when it will fit into the instructional program as determined and controlled by the instructor.					
17. Completed work of students is regularly displayed:					
a. in the school					
b. in the community					
c. entered in contests and/or exhibits sponsored by industry					
*18. Provision is made for safety training, reporting of accidents, student and teacher accident insurance.					

COMMENTS: (Note extent to which any inadequacies have been reported to the school administration and/or advisory committee, and action taken or planned.)

*Review records maintained by instructor or department head.

Check Appropriate Column as to Extent to Which Statement at Left Applies

E. INSTRUCTIONAL STAFF

	Fully	Large Extent	Partial	Minimal	Not at all
1. The instructor's experience is both sufficiently broad and in-depth to impart to his students the skills and knowledges they should have as determined by the objectives of the course.					
2. The instructor keeps up-to-date with industry's new technology, materials and practices through:					
a. industry visits					
b. summer work experience					
c. attendance at industry conferences					
d. membership in industry associations					
e. industry-sponsored workshops					
f. other					
3. The instructor keeps up-to-date as a professional educator through:					
a. membership in educational associations					
b. attendance at educational association meetings					
c. college courses					
d. in-service educational programs					
e. other					
4. The instructor is knowledgeable concerning current laws, regulations and codes pertaining to industry and the occupational program in which the instruction is being offered.					
5. The instructor sponsors extra-curricula activities such as a student club.					
*6. The instructor regularly arranges for his students:					
a. field trips to plants and offices					
b. demonstrations of new techniques and materials by suppliers and other industry people					
*7. The instructor regularly seeks advice and assistance from his advisory committee in the conduct of his instructional program.					
*8. The instructor constantly seeks part-time job placements for his students and full-time jobs for his graduates.					

OMMENTS: (Note extent to which any inadequacies have been reported to the school administration and/or advisory committee, and action taken or planned.)

Review records maintained by instructor or department head.

APPENDIX C

Report of The Arkansas Manpower Advisory Council for Economic Development

1969

Arkansas Manpower Advisory Council
for
Economic Development

State Education Building • FRanklin 5-7272
Little Rock, Arkansas 72201

January 31, 1969

Dr. A.W. Ford
Commissioner of Education
State Department of Education
State Education Building
Little Rock, Arkansas 72201

Dear Dr. Ford:

The following recommendations are made to the State Board for Vocational Education by the State Manpower Advisory Council for Economic Development. These recommendations are a part of the overall statewide study of vocational-technical education conducted by the Industrial Research and Extension Center of the University of Arkansas under contract with the State Board by a grant from the U. S. Office of Education.

These recommendations are the result of the work of eight Regional Manpower Advisory Councils and a Statewide Council involving more than 200 business and industrial leaders and others concerned with manpower problems. These Manpower Advisory Councils have met at least three times during the last few months to analyze data provided by the Industrial Research and Extension Center, the W. E. Upjohn Institute for Employment Research, and to develop recommendations. Between meetings, sub-committees and individuals have visited all types of vocational education programs in high schools, junior colleges, and area vocational-technical schools, including vocational-technical schools in neighboring states, to gain first-hand information about existing programs.

We understood that our mission was to take inventory of what we have; suggest goals to be accomplished that will improve the economy of the State and develop the talents of our citizens to the maximum; and recommend ways of reaching these goals.

These recommendations reflect the thinking of a large group of key leaders in Arkansas who have given considerable time and thought to this mission. We respectfully submit this report for your consideration.

Yours truly,

LC Baber

L. C. Baber, Chairman

LCB:rmb

STATE MANPOWER ADVISORY COUNCIL

Chairman	L. C. Baber, Executive Vice President Arkansas Council of Retail Merchants Little Rock, Arkansas
Vice Chairman	Clarence R. Thornbrough, Executive Assistant Arkansas Louisiana Gas Company Little Rock, Arkansas
Executive Secretary	J. C. Ruppert, Director of Industry Services State Department of Education Little Rock, Arkansas
Consultant	Samuel M. Burt W.E. Upjohn Institute for Employment Research Washington, D. C.
Project Director	Dr. Frank H. Troutman, Head of Manpower Resources Section University of Arkansas Industrial Research and Extension Center Little Rock, Arkansas

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U. S. Department of Labor
Little Rock, Arkansas

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A. M. & N. College
Pine Bluff, Arkansas

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Little Rock, Arkansas

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Arkansas Farm Bureau
Little Rock, Arkansas

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Head of Power Use Department
Arkansas Electric Cooperative
Little Rock, Arkansas

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Westinghouse Electric Corporation
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John Fitzgerald, Past President
Arkansas Society of Tool and Mfg. Engineers, and Production Manager for
Baldwin Electronics
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Marcus Halbrook, Research Director
Arkansas Legislative Council
Little Rock, Arkansas

Bob Lamb, Executive Vice President
Associated Industries of Arkansas
State Chamber of Commerce
Little Rock, Arkansas

Dr. John M. Peterson, Administrator
Employment Security Division
Little Rock, Arkansas

John H. Opitz, Executive Director
Ozarks Regional Commission
Little Rock, Arkansas

Means Wilkinson, Chairman
Industrial Committee
Arkansas Bankers Association
Bank of Greenwood
Greenwood, Arkansas

Carl E. Woodyear
District Plant Superintendent
Southwestern Bell Telephone Company
Little Rock, Arkansas

Robert L. Webb, Chairman
State Advisory Council for Vocational Education and Representative for the
International Brotherhood of Electrical Workers
Little Rock, Arkansas

Howard Jones, Jr., Chairman
Education Committee
Arkansas General Contractors Association
Howard Jones Contractor
Little Rock, Arkansas

Robert M. Millwee, Director
Arkansas Industrial Development Comm.
Little Rock, Arkansas

J. C. Rhew
International Association of Machinists
AFL-CIO
Little Rock, Arkansas

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Bennie F. Ryburn, Sr.
Ryburn Motor Company
Monticello, Arkansas

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GENERAL PHILOSOPHY, OBJECTIVES, AND RECOMMENDATIONS

1. *RESPONSIBILITY OF SOCIETY*

Society has the responsibility of providing vocational-technical education programs to fit the needs of all individuals.

2. *URGENT NEED FOR EXPANSION*

There is an urgent need to expand vocational and technical education and training programs and facilities at all levels of the public school system for all youth and adults in Arkansas who need, desire, and can benefit from such programs.

3. *EMPHASIS ON INDIVIDUAL*

Emphasis should be placed on programs that contribute to sound economic development in which the welfare of the individual is always of primary concern.

4. *LONG RANGE PLANNING*

There is need for the State Department of Education to develop and publish, in consultation with the Advisory Council, a long-range annual plan for providing vocational and technical education and training. This plan should apply at all levels of the educational system and should call for maximum possible financing by local communities.

5. *GOALS*

Vocational-technical training should be available for the 80 percent of the population which does not complete a college education. The immediate goal should be to provide vocational-technical education for 10,000 additional people (high school dropouts, graduates, and college dropouts) who leave school annually.

An additional goal should be directed at making some inroads on the backlog of such persons who have left school in previous years. The University of Arkansas Industrial Research and Extension Center estimates that there are 260,000 people in Arkansas who are unemployed, underemployed or who are not seeking work because they do not have the needed education and skills. Ten percent of this backlog, or 26,000 people, should be reached each year until this group has been made employable at a satisfactory level.

6. *PRIORITIES*

The following priorities for expansion of physical facilities for vocational-technical education are recommended:

a. Establishment of new vocational-technical schools in areas not now being served.

b. Expansion of present vocational-technical schools.

c. Establishment of area vocational-technical high schools.

The State Board should encourage and support vocational-technical educational programs in existing community colleges, as well as in any which are hereafter established.

Consideration should be given to priority for applications for new schools or expanded programs where area-wide support and financial arrangements exist.

7. *PUBLIC RELATIONS CAMPAIGN*

An intensive campaign should be initiated to acquaint the general public with the importance and value of skilled and technical occupations and, hence, the value of vocational-technical schools.

It is proposed that some State organization, such as the Associated Industries of Arkansas or the State Chamber of Commerce, organize this program, secure funds for carrying it out and arrange for a public relations firm to direct the entire activity.

Too many parents, students, teachers, and counselors feel that the only way to success is via college and the professions. Because of this feeling, many students are being directed to college and thus, to professional careers who do not have the capabilities or interests in college and professional training. This condition is contributing greatly to the high rate of student dropout in both high school and college, thus creating problems and frustrations.

8. *CLOSER RELATIONSHIP WITH INDUSTRY*

A closer relationship with industry and business should be developed and maintained by involving business representatives in planning and operation of educational programs, thus keeping them up to date and in tune with current needs.

9. *JOB OPPORTUNITIES*

More job opportunities at a higher income level are needed.

Employers should start graduates at a level related to their ability.

10. *CLOSER COORDINATION*

Training programs at all levels and activities of all agencies relating to manpower should be more closely coordinated to eliminate duplication of effort and to get more for each dollar expended.

11. *ROLE OF THE STATE DEPARTMENT OF EDUCATION*

The State Department of Education should continue its dual role of:

a. Providing leadership in education programs:

  1. Technical assistance
  2. Research information
  3. Standards of performance
  4. Plans and "seed money" for local school systems in the development of vocational and technical education.

b. Operation of the State system of vocational-technical schools.

12. *STATE ADVISORY COUNCIL*

We recommend that consideration be given to the appointment of members to the permanent State Advisory Council who can be relied upon to be active, who are knowledgeable on the need of Vocational Education, and who represent all areas of the State. Regional Councils should be continued.

13. *CURRICULUM LABORATORY*

A training aids, materials, and curriculum development center for vocational-technical education should be established by the Department of Education.

ELEMENTARY AND SECONDARY SCHOOLS

1. *ORIENTATION TO THE WORLD OF WORK*

We recommend that all secondary schools offer broad, general occupational exploratory programs.

Starting at the elementary level, a program should be established to acquaint students with the occupational opportunities in the business and industrial world.

The present programs in junior and senior high school should be utilized to provide exploratory experiences for students, but additional emphasis should be placed on realistic occupational information, training opportunities, and what employers expect, e.g., attitudes, work habits, and pride in work. (This latter phase should be emphasized at all levels of vocational-technical education.)

We feel that the following public school programs will reach the majority of students and are sufficiently occupationally-oriented so that they can be modified to perform the above named function:

Vocational Agriculture

General Business

Home Economics

Industrial Arts

Economic Education

If these exploratory or foundation programs in the shops and laboratories are supplemented with speakers from industry, field trips, occupational films, and other resource materials, an effective job can be done.

Orientation and in-service training of teachers in these areas will be necessary to develop optimum results.

A full utilization of Federal funds should be made to improve and expand Industrial Arts.

2. *EXPANSION*

There is a most urgent priority for expansion of vocational education and training programs for high school students, grades 8 through 12.

3. *EXPANSION OF COOPERATIVE TRAINING*

There are many communities with adequate facilities to operate cooperative training (on-the-job and school work combined). These should be instituted in additional schools that are not now conducting such programs.

4. *AREA VOCATIONAL-TECHNICAL EDUCATION*

Encourage local school systems, with State and Federal fund assistance, to establish area-wide vocational high schools, such as Metropolitan (Little Rock) and Sequoyah (Fayetteville).

Encourage local school systems large enough to support comprehensive high schools to provide vocational education and training programs by providing some part of the funds needed from available State and Federal funds. These districts should encourage area-wide participation.

5. *METROPOLITAN HIGH SCHOOL*

This school serving all of Pulaski County should be expanded and brought up to full accreditation.

6. *USE OF STATE VOCATIONAL-TECHNICAL SCHOOLS*

Utilize existing State-operated area vocational schools for providing vocational education and training for selected 11th and 12th graders whenever practical and possible.

7. *COUNSELING*

Present counseling and guidance in the public schools is inadequate and tends to over-emphasize selection of a college and college preparatory courses. We recommend:

a. Employment of counselors in Employment Security Division offices and industry during the summer to orient them to the real world of work.

b. Utilization of retired industrial personnel as career consultants.

c. Fuller use of Employment Security Division counselors.

d. More counselors to provide service in all schools and to reduce the load in schools that now have counselors.

POST—HIGH SCHOOL
PROGRAMS

The Council feels that the specialized skilled and technical training needs of the State can be more effectively met at the post high school level and that the area vocational-technical schools are the surest way of providing a State-wide program of vocational-technical education.

1. *VOCATIONAL-TECHNICAL SCHOOLS*

   We recommend that vocational-technical schools should be continued as separate institutions rather than becoming a part of junior colleges. Where both institutions are located in the same community, cooperative relations can be established where students can participate in both.

   Vocational-technical education in junior colleges in urban areas such as Fort Smith and Helena, can and should supplement the vocational-technical schools.

2. *ADDITIONAL VOCATIONAL-TECHNICAL SCHOOLS*

   Schools should be established in areas not now being served. Areas identified as not being served are:

   a. Northwest Arkansas - Benton and Washington County area.

   b. Southwestern and Western Arkansas - Polk, Sevier, and Scott County area.

   c. West Central Arkansas - Hot Springs, Garland, Saline, and Clark County area.

   d. North Central Arkansas - Jackson, Independence, Sharp, Izard County area.

   e. Southeast Arkansas - Drew, Ashley, Desha, and Arkansas County area.

   f. Central Arkansas - Pulaski County area.

3. *EXPANSION OF PRESENT VOCATIONAL-TECHNICAL SCHOOLS*

   Present schools should be expanded as justified to meet the students' needs and employment needs.

4. *FULLER UTILIZATION OF PRESENT SCHOOLS*

   Present school facilities should be utilized to the fullest. To this end, we recommend the following where training needs justify:

   a. The employment of two daily shifts of instruction.

   b. The employment of additional instructors.

   c. Operation of cooperative training programs.

   d. The enrollment of students at any time in a course where conditions justify.

5. *REALISTIC TUITION AND FEES*

A realistic charge for enrollment should be made which would not exclude worthy students of low-income families but which would cause students to feel that the program had some value. This enrollment fee should provide a meaningful share of the operating costs and should be supplemented with adequate scholarships and loan programs.

6. *EXPANSION OF WESTARK COMMUNITY COLLEGE*

A high-level technical program should be developed at Westark Community College.

7. *PLACEMENT AND JOB DEVELOPMENT*

Each school should have a comprehensive placement and job development program to carry out the following functions:

a. Match the graduate with the job and the employer best suited for him.

b. Develop beginning employment status commensurate with ability.

c. Follow up and counsel with the graduates and their employers.

SPECIAL TRAINING PROGRAMS

1. *NEW AND EXPANDING INDUSTRY*

Adequate funds should be made available to provide for the training of employees for new and expanding industries, thus increasing job opportunities and improving the general economy.

Where possible, company equipment and personnel and community buildings should be utilized in setting up special temporary programs tailored to the needs of the industry. This would require a very flexible budget and operating policy.

2. *TRAINING FOR THE DISADVANTAGED*

To assist disadvantaged youths and adults in becoming productive members of the work force, we recommend that the State Department of Education, in cooperation with other concerned and interested agencies and organizations, develop and publish a State-wide plan for remedial education for such groups.

Among the needs of this group are basic education, skill training, individual counseling, extraordinary placement help, and understanding of necessary work habits and attitudes. These needs must be met if these people are to become active participants in our economy and society.

Programs for this group require a different approach. Courses should be especially designed to fit the differing levels of the individuals. Representatives of the disadvantaged should be involved in planning. On-the-job training should be utilized to the fullest extent.

3. *UPGRADING OF PRESENT EMPLOYEES*

The State Department of Education should develop and publish, in cooperation with other concerned and interested agencies and organizations, a state-wide plan for adult vocational and technical skill upgrading.

Programs for these groups can provide the most immediate returns and can be an added attraction for new industry. Programs should include:

a. Basic remedial education.

b. High school equivalency program.

c. Special programs to upgrade and update employees in their field of work.

CHAPTER 3 — MAJOR FINDINGS

MANPOWER NEEDS OF INDUSTRY ARE BEING MET POORLY BY THE VOCATIONAL EDUCATION SYSTEM OF ARKANSAS

1. Arkansas is composed of a number of distinct geographic socio-economic regions. Each region has its own present and projected rates of economic, industrial and population growth requiring differing types and levels of educational and training programs for preparing youths and adults for productive employment in today's and tomorrow's world-of-work.

By 1980, agricultural employment will decline considerably in each of the eight State/regional areas, and manufacturing employment will triple in two areas and will nearly double in two other areas according to the projected manpower needs study contained in Part I of this report. This study, conducted by the Industrial Research and Extension Center of the University of Arkansas, also pointed out that nonmanufacturing employment will double in two regional areas and increase by double in two others. For the remaining regional areas, some growth is shown in both manufacturing and nonmanufacturing employment.

2. The types of industries for which education and training should be provided, based on Statewide estimates of growth by the Industrial Research and Extension Center are:

a. Manufacturing
  (1) Furniture
  (2) Fabricated Metals
  (3) Nonelectrical Machinery
  (4) Electrical Machinery
  (5) Transportation Equipment
  (6) Boat Building and Repair
b. Nondurable Goods
  (1) Food
  (2) Textiles
  (3) Apparel
  (4) Printing
  (5) Chemicals
c. Wholesale and Retail Trade
  (1) Retailing

d. Finance, Real Estate and Insurance

e. Services

    (1) Hotels and Other Lodgings

    (2) Miscellaneous Business Services

    (3) Medical

    (4) Educational

f. Public Administration

g. Construction

Within these broad industrial, business and professional categories of the private and public economic sectors of the State, the occupational fields which should be emphasized by the vocational and technical education system of Arkansas are, in general order of priority:

a. Machine and Machine Tools

b. Metal Fabrication

c. Electronics and Electro-Mechanical

d. Business and Secretarial

e. Middle Management

f. Health

g. Distribution

h. Food Processing

3. The public and private school system of Arkansas does offer vocational and technical courses at the secondary and post-secondary levels in most of these fields. However, there are neither sufficient facilities, nor enough students, nor a broad enough range of skill level programs to meet the variety of manpower needs of industry, business and the professions in Arkansas for vocationally prepared entry-level workers. While this is true for most job categories, there are schools that are apparently meeting the manpower needs of industry, business and the professions, and, for some occupations, even provide an over-supply. The following findings demonstrate that the Arkansas high school and post-high school vocational and technical education programs are serving only a small part of the trained manpower needs of the State, and only a small number of the youths and adults who need vocational and technical training in order to be productive members of the economy.

a. The average annual number of trained manpower needed for the following major occupational groups, according to the Industrial Research and Extension Center,

Clerical

Sales

Craftsmen, Foremen
Operatives
Service Workers

is approximately 22,000 (see Table III-B). Analysis of specific jobs within these categories indicates that 70 percent (15,955) could be filled at the job entry level by persons with a high school education which included orientation to the world-of-work and school experiences with basic machinery and tools used in broadly related occupational families. Over 50 percent of these jobs are in the Craftsmen-Operative groupings.

b. There is a deficiency of high school prepared students for manpower needs of industry, business and the professions. The vocational education and training programs of the State high schools are poorly meeting the economic manpower development needs of Arkansas. This is demonstrated by these findings. (1) The transition from school to full-time employment still occurs for most Americans around the completion of high school;[1] (2) Seventy percent of the entry-level jobs in Arkansas industry and business do not require more than a high school education which includes basic or general vocational education (Industrial Arts); (3) It is estimated that each year there are 25,000 high school graduates and 11,000 dropouts from grades 8 through 12 (see Table X) for a total of 36,000. Less than 2,000 of these students receive any preparation for trades and/or industry in the world-of-work (see Tablex VI and VII); (4) Most of the high school graduates have been limited to a choice of either business or agricultural education, yet there is a surplus of people with low-level job skills in the business and farm world. (See Table IX.)

In addition, it is estimated that approximately 368,152 Arkansans have less than eight years of education.[2] Only menial jobs are usually open to this group. Many persons are not in the labor market because they lack motivation to seek work or develop skills. This lack of motivation is traced back to a total lack of industrial employment orientation. "The potential development of persons in this classification would stimulate the State's economic progress and alleviate many of the problems encountered in the transition from a rural agricultural economy to a balanced industrial-commercial-agricultural state."[3]

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[1] Raising Low Incomes Through Improved Education, Committee for Economic Development, Washington, D. C., September, 1965, p. 25.

[2] Report of Cooperative Area Manpower Planning System (CAMPS) of Arkansas, Fiscal Year 1969, p. 24.

[3] Ibid., p. 26.

The greatest shortage of trained workers is in the Craftsmen, Foremen and Operators categories. (See Table III-B—it appears, as indicated in Footnote 1 to this table, that the average annual manpower needs for clerical and kindred workers is being adequately met by the public and private school system.) Analysis of specific jobs in this occupational group alone indicates that 68 percent (8,123) could be filled by high school graduates who would have had world-of-work orientation plus experience with basic machine shop equipment and tools. Yet the total number of high school students enrolled in Trades and Industry for the school year 1968 was 1,585 (see Table I) with only 664 graduating that year (see Table II). Even if we added the total number of students enrolled in Trades and Industry in the post-secondary schools, 3,764, no appreciable dent would be made in the annual manpower needs of industry.

Industrial Arts programs are considered part of the vocational and technical education system of a state. These programs provide students an orientation to the world-of-work, its materials, processes, technologies, and experience in basic industry skills. In Arkansas, less than 15 percent of the secondary schools with grades 7 through 12 and enrollments in these grades of less than 500, offer Industrial Arts courses. This group of schools represents 85 percent of all the high schools in the State and 60 percent of the total enrollment in these grades. Thus, most of the students in this group are denied an opportunity to experience even the most elementary kind of occupational education preparation. Furthermore, since most of the school dropouts leave school between grades 7 through 12 (the critical years for offering basic occupational education), Arkansas is a classic case in demonstrating the direct relationship between a high rate of high school dropouts and a lack of basic vocational education in the high schools. Further analysis of the dropout rates (Table XI) shows that for nonwhite students, the dropout rate between seventh grade and graduation is 22 percent, while for white students it is 26 percent. These figures show that white students suffer even more than nonwhites from a lack of vocational education in the State high schools. This is dramatically indicated by the fact that in urban areas with high schools enrolling more than 1,000 students, 20 percent of the schools do not offer Industrial Arts programs.

Educators and employers generally agree that cooperative work-study programs are among the most meaningful and worthwhile in the field of vocational education. Yet, in both 1967 and 1968 less than 400 high school students in the State were involved in Trades and Industry Cooperative Programs and only about 1,000 were involved in Distributive Education. The cooperative programs require that the student attend school one-half day and work in an occupational field related to his studies the remainder of the day under an agreement for training and wage payments made between the employer and the school. A school coordinator supervises the student's activities both in-school and on-the-job and is responsible for obtaining cooperating employers. Since most of the cooperative program coordinators in Arkansas are conducting Federally-reimbursed programs, part of their salaries is reimbursed by the State to the local school systems involved, thus minimizing the cost of such programs. In addition, of course, if a large number of students in a school are enrolled in cooperative vocational education programs, there is less need for expensive up-to-date shop equipment and shop space since both are provided by the cooperating employers.

It is believed that Cooperative Work-Study programs could and should be considerably expanded in terms of number of employers and students involved, and that no better investment of State, Federal and local funds could be made for dramatically improving the vocational education system in Arkansas.

On the other hand, there were over 18,000 high school students enrolled in Vocational Agriculture in 1968, with 2,767 graduating, and 1,008 entering employment in the field (see Table II). This compares with an estimated annual replacement need of approximately 1,500 (see Table III), while actual employment by 1975 will decline 29 percent under such employment for 1960. The salaries of Vocational Agriculture instructors are partially reimbursed from Federal and State funds. In 1968 this amounted to over $700,000 with local school districts contributing slightly over $1 million. The question might well be asked as to whether the State and Federal monies would be better invested in the salaries of cooperative program coordinators in Trade and Industry.

Most Arkansas high schools should review their program offerings to provide for a greater degree of flexibility and a complete change of emphasis in their vocational-education programs. This will help prepare their students for the world-of-work as presently constituted and developing.

c. There is a deficiency of post-high school prepared technicians. The annual manpower needs for trained personnel requiring post-high school technical education and training in the major occupational classifications is estimated at 6,220 (30 percent). It should be noted, however, that this figure does not include the occupational groupings of Professional, Technical, Managerial and Proprietor personnel. Until these figures are available, it is estimated that the average annual manpower needs for technical manpower in these categories will average 2,500. Thus the total estimated annual demand needs for post-high school vocational and technical education graduates in all occupational groups would be 8,720. The public and private school system of Arkansas is providing only 1,100 people annually with the technical level skills needed by industry in the State, or a net annual deficit of over 7,500 (see Table VII). Each year, the problem is compounded. In two years, the net deficit is over 15,000, within three years, the deficit is over 22,000, and so on.

It must also be pointed out that the above deficiency in school technical manpower is based on the assumption that all the post-high school vocational programs in the State are at a technical level; this is incorrect to a very large extent, particularly in the State operated post-high school area vocational-technical schools. These schools were established during the last decade, most of them in the last five years, to provide vocational education programs in rural areas of the State in order to remedy the lack of any industry vocational education in the high schools in these areas. For the most part, the courses offered in these schools, and the skill levels to which most of the full-time students are brought, are comparable to the course offerings and skill levels of high school vocational education programs found in most other states. One indication is the fact that employers are not generally offering higher wages to the graduates of most of these courses than if they had started working immediately after high school graduation. Furthermore, the curricula and the equipment in most of the shop courses are quite similar to those found in high school vocational programs. These comparisons are made simply to point out that in designating the State-operated area vocational schools as "post-high school," reference is made to the fact that these schools are for high school graduates and adults; not a continuum of vocational-technical education preceded by high school level offerings. Only a few courses offered in these schools might be considered as preparing graduates for entry-level jobs at the "technical" level. Thus the annual net deficit in trained technical manpower is actually much higher than estimated above!

d. There may be an excess of trained manpower supply in certain occupations. In addition to the field of farming, for which the school system is preparing an excess supply of manpower, it appears that the high schools and post-high schools are currently graduating almost three times as many radio and television repairmen, and almost twice as many practical nurses as needed annually (see Table III-C). They appear to be adequately meeting the manpower needs for motor vehicle mechanics and the printing trades. Also, there appears to be a close relationship between some of the machine and metalworking trade manpower needs and school graduates, although there is insufficient information available as to which specific jobs are covered.

It must be noted here that there are several factors which should be taken into consideration in analyzing the meaning of these and other statistics concerning employment projections by occupation as compared with school programs and courses. First, there is a considerable lack of common terminology used by the educators, economists and manpower specialists, e.g., a school course titled "Electronics" is frequently found to be a course in radio and television repair; a school program of "Distributive Education" may include hotel and motel training. Furthermore, graduates of a printing course from a school which offers no experience in lithographic processes will be totally unprepared for working in lithographic plants — that part of the industry which is currently in short supply of manpower. A graduate of a school machine shop program which is equipped primarily with obsolete equipment will find his school training of little use on the job.

Another consideration bearing on this matter is that while a number of school graduates reside in Arkansas, they may be working in other nearby states. Thus, what may appear as an excess of school trained manpower to meet the manpower needs of Arkansas, residents of Arkansas are in fact contributing to the economic growth of the State through the increased purchasing power generated by their employment out of state.

A third consideration concerns the matter of determining whether an apparent surplus of school trained people is the result of the programs of schools in one area of the State while other areas are actually facing shortages of skilled manpower in these same fields. If such a study were undertaken, it might lead to the addition of new programs in some schools, and reduction or elimination of program offerings in other schools. It is quite conceivable that a specific occupational education and training program should be discontinued after a few years if it has served its purposes.

FLEXIBILITY AND VIABILITY OF VOCATIONAL AND TECHNICAL EDUCATION IN ARKANSAS IS EXTREMELY LIMITED

1. The small number of high schools and post-high schools offering vocational and technical education programs, and the small number of students enrolled in such programs in Arkansas are factors which alone would almost preclude any effective degree of viability in terms of the trained manpower needs of the State's economy. A major factor contributing to a low degree of flexibility is the commitment of the State Department of Education to utilize available Federal and State funds to the maximum extent possible for expanding the number of State operated post-high area vocational-technical schools, almost to the exclusion of other types and levels of programs. Contributing to both a low degree of viability and flexibility of the State's vocational and technical education system is the lack of staff for planning, research and supervision in the State Department of Education. This lack, in turn, has produced few published short-range and long-range plans for vocational and technical education other than the minimal and generally meaningless State Plan required by the U. S. Office of Education. Without such plans, constantly revised in light of the changing needs of economic and industrial development, a flexible and viable system of vocational education geared to the manpower needs of the State is, for all practical purposes, an impossibility.

2. Various facets of the vocational and technical education system of Arkansas have been the subject of several studies in the past few years. Unfortunately, these studies have not been well

coordinated, nor have the findings been implemented in any important fashion, for whatever reasons may be ascribed, despite the fact that staff of the Division of Vocational, Technical and Adult Education has been involved in these studies. A major reason for this lack of coordination and implementation is that the staff of the Division is so overburdened with numerous responsibilities and constant operational deadlines that it has little time left for planning new approaches or undertaking recommended and approved innovative programs.

In the State Plan for Vocational Education for Fiscal Year 1969, submitted to the U. S. Office of Education, the statement is made that "no new innovations are planned because of lack of funds. The possibilities and needs are unlimited." It is believed that if there were sufficient staff in the Division, funds could easily be found. For example, last year Arkansas received close to $1 million under Title III of the National Defense Education Act. None of this money was used for establishing Industrial Arts programs for orientation to the world-of-work although most states use over 30 percent of these funds for such programs. It is believed that a major reason for not using these monies for Industrial Arts program expansion is that the State Supervisor for Industrial Arts has practically no time to spend on this facet of his responsibilities. Monies are available from other Federal laws if there were only staff in the department to study these laws, to prepare the proposals for the grants, and to supervise the projects. Staff needs, however, go beyond this research capability if the State Department is to perform its proper functions of leadership, planning, supervision, and coordination for improving and expanding the vocational and technical education system of the State. Without needed additional staff, the present staff, dedicated and overworked as they are, cannot hope to accomplish the department's goals, to become involved in innovative programs, or to plan for new programs to meet the manpower needs of the economy.

3. The State Department of Education is assuming too much of the financial burden for vocational and technical education, with the local communities sharing at a considerably lower rate than in most states. While several communities in Arkansas have submitted proposals for establishing new area vocational schools and new or expanded existing comprehensive community colleges, with partial rather than full financing from the State Department, the State has been unable to comply with these requests primarily because of its commitment to the State area vocational-technical institutes. Thus, there is and will be little opportunity to obtain more than token funds from the State for other needed types of vocational education institutions and programs.

Among a group of nine selected states, either surrounding or in some ways similar to Arkansas, it was found that Arkansas ranked next to the lowest in percentage of local expenditures for Federally reimbursed vocational and technical education. Arkansas also ranked next to the lowest among these states in per capita expenditures by local communities. While local school districts in Arkansas in 1967 contributed only 34.2 percent of the total funds expended on Federally reimbursed vocational and technical education, Colorado, Louisiana, Missouri, Oklahoma and West Virginia local school districts contributed over 50 percent. Michigan's plans for local community contributions in 1968-69 calls for 60 percent, while Arkansas plans for 30 percent, an actual decrease of 4.2 percent under 1967. Furthermore, 80 percent of Arkansas' local community contributions to vocational education for 1968 continue to be used for vocational agricultural and homemaking programs in the high schools, despite the opportunities in industry and the lack of high school prepared youths for these opportunities.

4. The State is overly committed to expand one type of vocational education institution. In an effort to remedy the lack of vocational education programs in the high schools of Arkansas, particularly in the rural areas, the State Department of Education established 10 post-high school area vocational-technical schools offering industrial, health and business education and training programs. These schools offer one-year programs for high school graduates and adults. Their full-time student capacity at any one time is approximately 200 per school for a total of about 2,000 students. They are all located in rural areas of the State, and plans for the establishment of such additional schools still exclude the urban centers, where most of the people live and where most of the job opportunities exist. There is no doubt that vocational education programs are needed in the rural areas, but with the potential student enrollment limited by the population in the rural area served by each of the schools, it must be expected that the annual cost of operating the schools will be extremely high — approximately $1,000 per full-time student per year (see Table V). Furthermore, it can be anticipated that this cost will be higher each year as cost of materials, salaries, etc. are expected to increase. However, if the State Department of Education had not established these schools, it is doubtful that much, if any, progress would have been made by Arkansas, through its local school districts, in providing new or expanded vocational education and training programs.

The question facing Arkansas educators and economic planners today is whether the State operated area vocational-technical schools in rural areas are to be expanded in number, or whether some specific instrumentalities and strategies or combinations are better suited to provide a viable system of vocational and technical education to meet the needs of its people and its developing economy.

There are currently a number of secondary and post-secondary schools in Arkansas which offer vocational and technical education programs including teacher training. These schools receive State and Federal funds for these programs through the State Department of Education. (See Table XII.) In total (see Table VII), about 5,000 students are enrolled in the post-secondary institutions.

Even if 5,000 graduated each year, a considerable net annual deficit of technically trained manpower for industry's needs still would exist. There is also a deficit of post-secondary technical education facilities which provide educational opportunities for youths and adults who desire and could benefit from such schooling. Yet, the State Department of Education and the State Board for Vocational Education have repeatedly adhered to their policy, restated as recently as August 16, 1968, that when funds are available for expansion of vocational-technical school facilities, priority will be given to establishing new State operated post-high school area vocational-technical schools within reasonable commuting distance of all the people of Arkansas.

Even if this type of school were the only feasible instrumentality available for providing vocational-technical education to the great majority of Arkansas youths, an analysis of the State's population concentration and growth would indicate that four or five additional large schools (enrolling about 1,000 full-time students each) located in metropolitan centers would serve the great majority of people. Furthermore, it is the metropolitan areas which offer the greatest number of job opportunities. However, if the policy is to establish area schools within reasonable commuting distance of all residents of the State, at least 15 additional schools would be needed at a cost of about $600,000 per school and an annual operating budget of some $260,000. It is simply not realistic to expect that such monies will be available anywhere in the near future for either of these alternatives (five or fifteen schools) from Federal and State resources. Furthermore, there is considerable question as to whether these are the type of schools needed to provide a viable and flexible system of vocational-technical education for the State. It has already been pointed out that 70 percent of industry's manpower needs could probably be met by employees who had received basic vocational education in high school. This is industry's experience throughout the country, and explains general satisfaction with the quality of the vocational programs offered by the Arkansas State area vocational-technical schools, to be discussed later.

Other alternatives have been recommended in several recent studies, as follows:

a. The Government Efficiency Study Commission, in its correspondence of of April 24, 1968, to Governor Rockefeller recommended (page 15) "Construct no additional schools (ed. State operated area post-high vocational-technical schools) until the present schools are developed to their maximum capacities."

b. The Arkansas Advisory Council on Public and Secondary Education, in its 1969 report to Governor Rockefeller found and recommended: "From the data available, it is evident that a great number of the public elementary and secondary schools in Arkansas do not offer a broad enough educational program either to adequately prepare the youths of the State for gainful employment or to keep their continued interest in further educational pursuit; therefore, the subcommittee recommends that the public educational programs of the elementary and secondary schools be expanded as rapidly as possible to correct the above situation with all the means available."

c. The Batesville Manufacturing Company, a subsidiary of Aerojet-General Corporation, published a report on vocational education needs last year which stated:

> "As one of the larger employers in the State of Arkansas in the metalworking industry, it is considered timely to speak out on some of the basic issues facing Arkansas today relating to industrial training and education . . . .
>
> "To successfully cure the woefully inadequate industrial vocational training in Arkansas, we must go back to the most widespread educational facilities in existence — the public school system and most particularly the high school . . .
>
> "All areas and communities of the State are served by high schools now, today . . .
>
> "The major area high schools must be utilized to train our young men and women for jobs in industry as well as to train them in the academic or agricultural fields."

d. The Commission on Coordination of Higher Educational Finance for Arkansas has produced two reports which hold great promise for the future of vocational and technical education in the State. One deals with the total range of manpower needs in the health occupations, including a number of technical level occupations for which post-high school technical training would be appropriate. (It should be noted that this report also projects an over-supply of practical nurses by 1975, but warns that this projection could be wrong.) The second report provides a long-range plan for comprehensive community colleges which would provide a wide range of technical level education programs. The particular usefulness of this report lies in its delineation of geographic areas to be served by the community colleges in terms of short-range (9 colleges), intermediate range (11 colleges) and long-range plans (18 community colleges). Furthermore, unlike the State area vocational-technical schools, which depend on State and Federal funds completely, the comprehensive community colleges would be financed by a combination of local taxes, student fees and State and

Federal funds. This report, good or bad, should be carefully studied since it is the first study of vocational education in Arkansas which provides for complete coverage of the State by distinct geographic areas and calls for a flexible system of financing.

An examination of the official minutes of recent meetings of the State Advisory Council for Vocational Education and of the State Board for Vocational Education reveals no discussion of the above reports. The Regional and State Manpower Advisory Councils on Economic Development were not advised of these reports until too late for in-depth study and discussion. The question must be asked then, if these alternatives had been studied by the Board for Vocational Education (as well as by the Regional and State Manpower Advisory Councils for Economic Development) would the decisions and recommendations have still been made that priority was to be given to expanding the present number of State operated post-high school area vocational-technical schools?

5. The evening school adult education programs provide a variety of course offerings. The evening school adult programs of the State area vocational-technical schools are extremely flexible and viable in providing short-term courses of education and training in a wide variety of subjects and skills upon request from employers and employees. These programs are given both on-campus and off-campus — wherever it is considered most feasible and desirable. Tuition charges are so minimal that it is doubtful that the costs incurred by the schools are recovered by the tuition. Also, the State Department of Education provides special staff to conduct short-term evening school courses in high schools and other institutions and facilities in the fields of distributions, marketing, finance and supervision for employed personnel. These courses are offered in cooperation with employers and employer association groups. Most of these programs, however, are for people already employed in the field — there are few programs available for people employed in one field desiring to develop skills for possible employment in another field. Lack of facilities and instructors, due primarily to lack of funds, is the major factor inhibiting such programs. Where monies are available, e.g., for special training programs for the disadvantaged and hard-core unemployed, the programs are conducted to the extent possible by the State operated area vocational-technical schools (plans are being made for a special instructor for such programs in each of these schools) as well as by local school districts.

6. Instructional programs to be expanded are primarily in agriculture and traditional vocational fields and there are very few new programs to cover emerging technologies. According to the 1969 State Department of Education Projected Program Activities in Vocational Education, submitted to the U. S. Office of Education, there will be 33 expanded programs in vocational agriculture in the high schools for full-time high school students and evening school adult students.

In the field of office occupations, six high schools will expand their programs for an additional full-time student enrollment of 180, and three post-high school programs will enroll an additional 200 students; there will be 15 additional adult evening programs (with 30 additional teachers) for 1,000 students and two programs for an additional 25 disadvantaged individuals. Trades and Industry Programs will be expanded only at the post-high school level institutions for an additional 260 students in the following fields:

Electrical Technology
Automotive Mechanics
Drafting
Industrial Electricity
Basic Instrumentation
Machine Shop
Welding

Of the additional enrollments in this group, 195 are expected to complete these one-year courses, indicating a dropout rate of 25 percent. This estimate is considerably lower than the experienced dropout rate in the State area vocational-technical post-high schools which run from a low of 27.1 percent to a high of 52.5 percent.

Of the total of 11 new instructional vocational-technical programs to be offered in 1969, all but one are at the post-high school level, and practically all will be in the new two-year residential State Technical Institute at East Camden which opened in September, 1968. The new post-high school programs are:

Advertising Technology
Automotive Mechanics
Dental Hygienist
Building Construction
Chemical Technology
Electronics Technology
Instrumentation Technology
Mechanical Technology
Other (two programs not described)

Enrollment in these courses is estimated at 230, but there will be no graduates available until the end of the 1970 school year.

While it is encouraging to note that the secondary and post-secondary schools will be enrolling an estimated additional 380 full-time students in office occupations, and the post-secondary schools will enroll an estimated additional 490 full-time students in vocational and technical courses in Trades and Industry, it must be realized that several restrictive features limit the flexibility and possibility of major expansion of present programs and initiation of additional new programs. These are:

(a) student enrollments in the schools are limited by the amount of space and number of shops and classrooms available

(b) present policy of utilizing the State operated vocational-technical schools for only one shift of full-time students

(c) complete occupancy of present facilities by the equipment needed to conduct presently offered programs thus institutionalizing present programs and making possible new programs only when new facilities are built.

Furthermore, the present dropout rate of students in the post-high school programs makes it necessary to provide space for at least 25 percent more student enrollments than are expected to complete the courses. Of those students who do complete the courses, a substantial number do not enter employment in the occupation or related occupation for which they were prepared. Part of this problem, and the dropout problem, is related to the fact that any one of the area vocational-technical schools can only offer a limited number of programs, determined primarily by available space. Running from a low of 5 courses at Phillips Community College to a high of 16 at Pines Vocational-Technical School, 9 post-secondary schools offer either 8 or 9 different courses, two offer 10-11 courses and two offer 15 courses. Of the 15 post-high school institutions listed by the State Department of Education in their current publication, "Arkansas Vocational-Technical Schools," the various course offerings total 41, but almost 45 percent of these courses are offered at only one school, although not necessarily at the same school.

Number of Courses	In Number of Schools
18	1
4	2
6	3
1	4
3	5
2	6
1	7
1	10
2	11
2	12
1	13

The courses offered at six or more schools are:

Courses	In Number of Schools
Mechanical Drafting	6
Appliance Service	6
Radio and TV	7
Practical Nursing	10
Welding	11
Machine Shop	11
Auto Mechanics	12
Bookkeeping	12
Secretarial	13

Of the nine most extensively offered courses, only three are connected with basic manufacturing operations, three in the service fields, one in the health field and two in office occupations. Youths and adults seeking post-high school vocational and technical education are thus not only limited by the number of facilities available, but also in the number of options provided at any particular post-high school facility available to them within reasonable commuting distance.

It should also be pointed out that no published document exists that shows short- and long-range Statewide area-by-area plans for expanding or initiating new vocational and technical education programs at various school levels. While some people may consider the lack of such a plan the ultimate in flexibility, it is also a technique for achieving the ultimate in nonviability.

7. Lack of information as to new industries coming into Arkansas, and proposed location of new plants hampers the State Department of Education in providing trained manpower and other services which could contribute to the economic development of Arkansas. The report of the study, "Vocational and Technical Skills and Literacy Systems Within the State of Arkansas" completed by Ling-Temco-Vought, Inc. in August, 1967, documents the need for a flexible and viable program of close relationships between the various economic development planning and research agencies, the manpower services agencies and the State Department of Education, in order to mobilize and conduct an effective all-State program to attract new industries. Detailed findings and recommendations for positive action are provided in the above-mentioned report and it would be pointless to reiterate them in this report. Among the major recommendations was the following:

> That the State Department of Education establish a Division of Industry Services responsible for conducting specialized training programs of short

duration for existing, expanding and new industries throughout the State.

Additional recommendations outlined how this division is to operate in cooperation with other economic and manpower development agencies, and how it is to be organized to provide a completely flexible series of services, and the type of staff needed. The model on which this Division of Industry Services is based is found in South Carolina and North Carolina. Partial action has already been taken by the State Department of Education in appointing a Director of the Division of Industry Services, and a bill has been submitted to Arkansas State Legislature to fund the Division so it can become operational. Also, the Director of the Division is now attending meetings held by various economic development agencies so that he is currently being informed of new developments affecting the economy and manpower needs of the State.

As an example of how important this Division can become to the economic development of Arkansas, the following information concerning the availability of manpower training is taken from an advertisement placed by the New York State Department of Commerce in the February 17, 1969 issue of U. S. News and World Report (page 2):

> "Need money to meet training costs? New York State helps pay costs of manufacturers who qualify under New York State's Manpower Training Act, manufacturers can be reimbursed for a large part of the cost of on-the-job training. You can also get help from special classroom training of potential staff. The State helps pay for: allowances to trainees, instruction, clerical salaries, training materials and other expenses — some of which cannot be paid for under Federal programs."

Many other states are providing such training programs to induce industry to locate in their state and Arkansas really has no alternative but to meet such competition. It is expected that the State Legislature will provide the requested funds.

While the State Department of Education does provide a flexible program of special short courses for training people for in-State companies, it must also provide these programs on a larger scale and train manpower for new employers and new industries. There is also a need for the State Department of Education to publicize the availability of such new and present services, as well as publishing a brochure describing all the vocational-technical offerings at all levels of the public and private school systems by economic regional areas. At the present time there are three brochures available from three different State agencies, but none of them provide sufficient information.

ARKANSAS CAN LOOK FORWARD TO INCREASING INDUSTRY INVOLVEMENT IN VOCATIONAL AND TECHNICAL TRAINING PROGRAMS OF THE SCHOOL SYSTEM

The State Department of Education has long promoted industry involvement in the vocational education programs of the public schools offering such programs. All vocational courses in the secondary schools, the area vocational-technical post-secondary schools, and the junior and community colleges which receive State and Federal funds are required to establish occupational industry advisory committees. No course was initiated in these schools without the advice of such committees. These committees helped the school administrators and instructors design the curricula, and met with them to provide advice on needed changes. Assistance in student recruiting and graduate employment has also been provided by these committees. Westark Junior College provides an excellent case study which shows the high degree of industry involvement in the planning, conduct and evaluation of its programs of vocational and technical industry education and training.

Whatever there was or is lacking in industry involvement in school programs, the schools must be faulted since industry-education advisory committees function well or poorly only as the school officials permit them to do so. For example, meetings of the advisory committees have been infrequent, copies of meeting minutes are haphazardly maintained — if at all — and little effort has been made to utilize the committees for such supportive services as evaluation, student recruitment, instructor skill improvement, cooperative work-study programs, public relations activities, and others. Furthermore, each advisory committee has been limited in its concern to only that course and school for which it was appointed to serve. The committees have been further limited in their service by lack of information concerning skill level requirements outside their own community of interest. However, this situation can be expected to change.

1. The Manpower Advisory Councils for Economic Development. In conducting the study on which this report is based, the decision was made to organize eight economic regional groups composed of representatives from business, industry, labor, economic and manpower development agencies and local and State legislative officials and educators. Approximately 225 of these people agreed to serve on the eight Regional and the State Manpower Advisory Councils for Economic Development. In their study of the vocational and technical education system of their regions and the State, they spent considerable time, money and effort in performing yeoman service to become intimately knowledgeable with the problems, programs and objectives of vocational and technical education. Their final recommendations for improvement and expansion of vocational education (Appendix C, Chapter 2) clearly demonstrates their statesmanlike approach. The recommendations indicate the amount and depth of knowledge acquired by these nonprofessional educators, and is remarkable considering the short period over which this study was conducted. They have proved that

businessmen can and will participate in solving school problems when given some professional staff assistance and guidance. The organization and functioning of these Councils is the subject of a special report to be published at a later date. It should be noted that while some of the professional educators involved in this study differ in some respects with some of the recommendations of the State Manpower Advisory Council (as do several of the Regional Manpower Advisory Council chairmen) they also differ among themselves on how best to improve the vocational-technical education system of the State. If most of the recommendations of the State Manpower Advisory Council are put into effect, the vocational-technical education system of Arkansas will be improved considerably.

a. In assisting the Regional Manpower Advisory Council's study of school programs, one questionnaire was prepared for use by the schools to report costs, enrollments and other features of their vocational programs in terms of "balance sheet" and "profit and loss statements." It was found that the schools do not maintain the type of records which lend themselves to analysis by program objectives and costs. Most of the data provided by the schools had to be interpreted broadly, and is useful in this report primarily as indicative of a situation. It should be noted that researchers have also criticized educational reporting systems in most local and State school systems.

b. The Manpower Advisory Councils found that there is a woeful lack of vocational counseling guidance and job placement services in most all State schools. There is no vocational guidance director in the State Department of Education (plans have been made to employ such a person in the near future), and many high schools either do not have any guidance counselors, or the ratio of counselors to student load is so high that it is meaningless in terms of either educational planning or vocational guidance. Counseling functions have been combined with other responsibilities of the administrative staff in area vocational-technical schools. Job placement of graduates, in terms of their best interests, is accidental at best. Without a good system of vocational counseling and job placement for youth, many enter the labor force quite haphazardly, i.e., accepting jobs which are not keyed to their capabilities, interests and potential for promotion. Furthermore, a lack of counseling services makes it impossible to assist students when they apply for entrance into post-high school vocational and technical education programs. These programs then suffer from lack of enrollments even though desirable employment opportunities are available to youths who complete the programs. The fact that 24 percent of the students in the State area vocational-technical schools are under age 21 proves that high school graduates are not entering the post-high school vocational programs. One of the factors contributing to this low percentage is attributable to lack of counseling staff and service. This lack, as well as the low percentage of immediate high school graduates in the post-high schools, is in turn a contributing factor to the lack of viability of the vocational education system in Arkansas.

c. Evaluations of the programs of the State area vocational-technical schools by Industry-Education Advisory Committees were extremely favorable. With the assistance of the Regional Manpower Advisory Councils, a procedure and guideline checklist was developed for use by the individual school advisory committees to evaluate the courses in those schools they serve. All the vocational and technical courses in 12 post-high and three high schools were evaluated, by individual industry advisory committees comprising a total of over 70 industry, business and professional employer representatives. Each committee used the Evaluation Guidelines (65 questions) in assessing each course as to the quality of its physical facilities, equipment, tools, supplies, instructional program, instructional staff and handling of students. The ratings and comments by the advisory committees were mainly good and excellent, particularly for the State operated area vocational-technical schools, although there were a number of items which were noted as needing improvement. All the rating forms and summaries were returned to the State Department of Education for review and discussion with the individual school officials. The Department has indicated these Evaluation Guidelines will continue to be used, with improvements made as a result of their initial use, in future evaluations of vocational-technical education programs.

How much additional evaluative criteria and information can be obtained by using industry advisory committees is a matter of speculation and experimentation. One important criterion was not included in the current evaluation, i.e., a comparison between the initial enrollment number in a particular program, number of students who dropped out during the year, number completing the course, and the number entering employment in the occupation or related occupation for which they were prepared by their schooling. Whether the course should be continued, expanded, discontinued, or changed to provide higher levels of skill training is another area for investigation.

The question concerning the number of students entering employment in the occupation for which trained has many implications. Students who complete vocational and technical education programs at the post-high school level are expected, to a much larger extent than high school vocational graduates, to go to work in the occupation or related occupation for which they were trained. According to the reports from the Arkansas State Department of Education, 71 percent of the students complete their post-high school courses and enter the labor market. Of this 71 percent, it is reported that 91 percent are employed in the occupation or related occupation for which they trained (see Table II). However, in the Student Follow-Up Study Report (which included a sample 34 percent of vocational program completers and dropouts) only one course — Practical Nursing — indicated a 91 percent placement rate for the area vocational-technical schools. The placement reports for all the other courses ranged from a low of 16.7 percent to a high of 75 percent, with only four courses out of 19 rating 70 percent or higher.

It should be noted that if we compared the total number of 1968 vocational and technical program graduates (see Table II), 6,208, against the total number employed in the occupation or related occupation for which trained, 2,761, as reported by the State Department of Education, our employment rate is 44.4 percent. (It is conceivable that if the sample Student Follow-Up Study rates are correct for the entire group the percentage would be even lower.) Thus, if we must anticipate that only 44 percent of the graduates of a particular program do enter the occupation or related occupation for which trained, and 60 trained people in that occupation were required by industry annually, we should plan theoretically to enroll 137 students to obtain the 60 graduates who do enter the occupation. This figure does not include dropouts who may or may not enter the occupation or related occupation for which trained. The problem presented above is purely hypothetical, since no school system attempts to meet all trained manpower needs for industry. Because of this fact, and because there is considerable concern as to the impact of using job placement figures against manpower needs figures (which are also subject to error in interpretation — particularly for specific occupations), throughout this report we have prepared the average annual manpower needs of industry to school graduates. This has been done instead of using percentage rates of graduates placed in jobs or related jobs for which trained. Industry's needs are neither that precise nor does industry depend entirely on schools to train all its manpower. However, this hypothetical case does illustrate the fact that number of enrolled students in secondary and post-secondary vocational courses are different from the number who enter employment in the occupation or related occupations for which the school presumably prepared them. It is believed that specific occupational program industry advisory committees could be asked to investigate this matter in their evaluation of school programs.

d. The Regional Manpower Advisory Councils and school Industry Advisory Committees are concerned about the need for expanding cooperative work-study programs and increasing starting wages of post-high vocational and technical school graduates. Earlier in this report the need for increasing the number of students in cooperative work-study programs was discussed. Deliberations of the Regional and State Manpower Advisory Councils indicated a willingness on the part of industry and business to be involved in solving this problem, particularly since it is possible under provisions of the 1968 Amendments to the Vocational Education Act of 1963 to reimburse employers for the extra costs they may incur in such programs. It was also agreed that public agencies, including the schools themselves, should be involved as cooperating employers. For example, it was pointed out that high schools throughout the State employ school bus maintenance units which could be used for training selected students in automotive mechanics. Schools also operate school stores, school banks, school cafeterias, etc., and many do employ students to work in these areas, including the school office.

A major problem affecting vocational-technical education at all levels, particularly at the post-high school level is concerned with the fact that graduates of these programs frequently start entry-level jobs at the same wage levels as new employees with no vocational education or experience background. While various national studies indicate that vocational program graduates move up the job and wage scale — up to a point — more rapidly than employees without such background, this is small encouragement to a great number of youths in secondary and post-secondary school programs. They believe, as do most parents, educators and researchers, that the "payoff" to youths for becoming involved in vocational and technical education, should be a somewhat higher wage differential at the entry-level than for nonvocationally prepared entry employees. It is suspected that much of the existing poor public image of vocational education results from employers' apparent lack of willingness to provide this wage differential. Since industry people do involve themselves in helping make vocational and technical education programs "meaningful" and "relevant," to their manpower skill needs, it must be assumed that where these programs do meet this goal, the employers should be willing to pay the graduates a higher starting wage. It is believed that employers will do so if the various school industry advisory committees take the lead in this matter, as well as undertaking a program of persuasion among other employers to do likewise.

e. Many members of the Regional and State Manpower Advisory Councils and school Industry Advisory Committees also serve on other educational manpower and economic development advisory committees and boards. Regional and State Council members contributed as much as they did to this study because many of them have served, or are currently serving on other advisory and planning groups which deal with education, training, manpower and economic development. This was also true for some school Industry Advisory Committee members. In these other advisory capacities no effort was made to coordinate and integrate agency interests with other groups. However, in conducting this study, every effort was made to achieve such coordination, and this explains the wide-ranging scope of this report. Continuance in a modified form of the Regional and State Manpower Advisory Councils for Economic Development, either under the auspices of the State Department of Education or the Governor's office will provide for the continual coordination of training programs of various public and private agencies in order to achieve an overall State Manpower Development Program. The beginnings of such effort now exist in the program of CAMPS (Cooperative Area Manpower Planning System) which has several major weaknesses:

1. representatives of industry and business are not included as official members

2. as an information gathering agency for the Federal government conducted and funded programs, it makes no effort to integrate findings and recommendations
3. no effort is made to achieve other than voluntary coordination and integration of various program efforts.

Thus the work of CAMPS is seen as a source of information for manpower development throughout the State rather than as an instrumentality for achieving a coordinated program.

PLANNING AND RESEARCH CAPABILITIES IN THE FIELD OF VOCATIONAL AND TECHNICAL EDUCATION OF THE STATE DEPARTMENT OF EDUCATION ARE SERIOUSLY LACKING

Almost a total absence of specialized staff was found in the State Department of Education. This staff is needed to conduct needed research and to develop plans in the fields of vocational and technical education. These responsibilities are now assigned to an already overburdened administrative and supervisory staff. It is a remarkable achievement that considerable progress has been made in the last few years in even partially meeting Arkansas' vocational education needs. However, this is no way to run a $9 million a year business which will expand to even higher levels in succeeding years.

While it is true that various other agencies such as the State Employment Service, the Arkansas Industrial Development Commission, and the Industrial Research and Extension Center of the University of Arkansas, have provided "inputs" for use by the vocational education administrators and specialists, these inputs are often not as useful as they should be to the educators. The State Department of Education needs staff with backgrounds in economics, demography, sociology and other behavioral sciences to interpret the economic and other such available information in a format which can better assist the educators in developing their plans and programs. Also needed are additional supervisory and occupational staff who can develop curriculum materials and guidelines, and who can provide assistance to local school districts and schools in dealing with the variety of problems posed by vocational and technical education. The present staff of supervising specialists is too small to plan, conduct and adequately supervise, and evaluate existing programs much less the needed new and innovative programs.

Some of the major research and planning projects which need to be undertaken by the State Department of Education are either not being done, or are being conducted in a most superficial manner. These projects are:

1. Studying the feasibility of mobile vocational and basic literacy educational facilities for rural areas (to be discussed later)
2. establishing criteria for determining sites, size and curricula for area vocational schools at both the secondary and post-secondary levels.
3. conducting evaluation studies of school vocational and technical education programs as required by the 1968 Amendments to the Vocational Education Act of 1963
4. studying the variety of Federal laws which provide funds for vocational and technical education and training, and preparing proposals to obtain such funds for specific program activities
5. assisting local schools, school districts and employers in obtaining available Federal funds for vocational and technical education and training
6. preparing and publishing short- and long-range plans, revised annually, concerning vocational and technical education programs needed to meet the economic growth requirements of the State
7. preparing and publishing up-dated specific trades and industry vocational and technical curricula for new business and industrial programs
8. participating in a meaningful way in studies and demonstration projects of local school systems which deal with vocational and technical education
9. conducting continuous studies of ways and means to achieve greater flexibility of vocational and technical education by utilizing private schools, home-study courses, etc., and achieving greater utilization of existing facilities
10. conducting continuous studies of the
    - (a) desirability of discontinuing specific vocational programs and introducing new ones
    - (b) ways and means for coordinating other manpower development programs, i.e., the Concentrated Employment Program taking place in 14 eastern Arkansas counties and the Opportunities Industrialization Center of Little Rock so that

the public educational system may benefit from these programs

11. continuing review of vocational and technical education research being conducted in other states so as to apply worthwhile findings to Arkansas' problems and programs
12. developing and implementing an articulated system of vocational education and training starting in the junior high school grades and continuing through the junior and community college, including on-the-job training programs.

Without a research and planning staff for vocational education in the State Department of Education, much that will be done in the future will be based on the personal "hunch" and bias of the supervisory staff, and will have to be accepted "on faith" by the Governor, the legislature, the businessmen and the general public. Such faith is no longer acceptable because the educational problems of Arkansas must be resolved.

Larger sums of money for expanding State Department planning and research staff will be available under provisions of the 1968 Amendments to the Vocational Education Act of 1963. A first step, which could be taken immediately, would be the transfer of the Vocational Education Research Coordinating Unit (RCU) from the University of Arkansas to the State Department of Education. Monies for this RCU, provided by Federal and State funds are administered by the Department. In many states the RCU is located in the Department of Education in order to address itself directly to the research needs of the department. When not so located, the RCU is an independent unit making its own decisions on responsibilities, priorities, and actions. If this research staff were part of the department, Arkansas would be in a better position to conduct its own planning and evaluation of its vocational and technical education programs.

1. Planning school dropout prevention programs and special programs for the disadvantaged and chronically unemployed requires urgent attention by the State Department of Education. It is estimated that from 1969 through 1975 some 11,000 high school students will drop out, a rate of close to 10 percent. The U. S. Office of Education considers a 7 percent dropout rate as indicative of a serious situation; a 10 percent dropout rate is to be considered most critical! Not until the school year 1975-76 is any decrease projected.

As critical as the high school dropout rate is, the situation is even more serious when we look at the projected student dropout rates between the first and the twelfth grades. Instead of becoming less over the years, particularly after 1975, the absolute numbers remain the same, although the percentage does drop. However, a higher percentage will be leaving before the eighth grade in the years after 1975 than are presently leaving. This indicates the need for herculean school dropout prevention programs and practices in the elementary, junior and senior high schools.

The dimensions of this problem can be seen as the dropout rates between white and nonwhite students are analyzed (see Table XI). Of those students who entered first grade in 1955, almost 50 percent of the nonwhite and 15 percent of the white students will have dropped out by the ninth grade. Only 35 percent nonwhite and 66 percent white students graduated from high school in 1967. Two-thirds of the nonwhite youths of Arkansas are not receiving a full high school education and because of this lack, are barred from any further education and training in the post-high schools of Arkansas. Furthermore, they must enter and remain in the labor force as unskilled and untrained workers because of this educational deprivation and lack of vocational education. Out of about two million Arkansans, there are over 368,000 with less than an eighth grade education.[11] This is a deterrent to any state's economic development. If you add 20,000 more people to this group annually, including 11,000 high school dropouts, the results can be disastrous, particularly in those regional areas which have the highest dropout rates.

As might be expected, the dropout rates in the various communities of Arkansas differ, as indicated below:

School District	Dropout Rate Grades 7-12
Pulaski County Special School District (Little Rock)	3.8%
Lakeside School District #1 (Lake Village)	7.9
El Dorado School District #5 (El Dorado)	4.3
Valley Springs School District #2 (Valley Springs)	5.6
Monticello Public Schools (Monticello)	5.2
Silvan Springs District #21 (Silvan Springs)	3.6
Gentry School (Gentry)	13.5
Perry-Casa School District #2 (Casa)	7.4

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[11] Report of Cooperative Area Manpower Planning System (CAMPS) of Arkansas, Fiscal Year 1969, p. 24.

Lack of community economic growth and lack of schooling produces a continuing cycle. Research in this field indicates that those principles which prevent a student's high school graduation also prevent a community's population and economic growth. Leaving out the psychological school withdrawal factors, it is documented that a community's lack of growth potential rather than a student's personal growth potential provides more school dropouts. Thus, any community with a high student dropout rate is one which has little prospect for economic and industrial development and growth. However, the Arkansas public school system is doing nothing more than talking about its dropout rate!

In a recent nationwide study, local school systems were surveyed concerning special provisions made for disadvantaged youths (who make up the bulk of the school dropouts). No Arkansas school replied to the questionnaire submitted through the State Department of Education. In a recent request from the U. S. Office of Education, only eight Arkansas school districts submitted proposals to conduct demonstration school dropout prevention programs. These eight indicated that no special programs were being conducted to keep students in school. The proposals they submitted were neither innovative nor experimental. They only wanted funds to provide counseling services and vocational education programs provided by most good secondary schools. Arkansas lacks these basic programs and services.

Until high schools offer a higher level of counseling services and some minimal vocational education programs geared to trade and industry, it would be useless to provide a high school dropout prevention plan. Unfortunately, the State Department of Education concentrates on post-high rather than high school remedial programs. As effective as area post-high vocational-technical schools may be, there are only 10 such schools in the State and these have limited classroom facilities and staff. So long as the State high schools cannot provide services and programs relevant to the needs of youths, the post-high schools and other institutions and organizations offering adult remedial programs can expect an ever-increasing case load. Most states committed to economic development are improving their secondary school programs, as well as their post-high school programs, in an effort to decrease the need for adult remedial programs.

While the adult programs must be provided for some time to come, Arkansas must decide, right now, whether or not the secondary school programs are to be improved so that the adult programs can eventually be phased out. There is no evidence in the form of a published document that such planning is being undertaken by the State Department of Education.

The relationship of school dropout prevention programs and vocational education (particularly Industrial Arts programs which are prevocational in nature) is well stated in a report of a recent study of 200 dropout prevention programs:

> "We found that the net effect of prevocational training is to hold youths in school for further vocational training. The better programs provide exposure to a variety of jobs, attitudinal development and change, and diagnosis of individual strengths and weaknesses for various occupations. Above all, successful programs lay the foundation for sound occupational choice and avoid offering prevocational training that is unrelated to vocational training."[12]

The aforementioned quote is a statement of the objectives of Industrial Arts Education. If the secondary schools in Arkansas provided Industrial Arts Education programs (which most do not as discussed in other parts of this report), they would almost automatically have a good school dropout prevention program.

However, the adult illiteracy and school dropouts problems must be attacked immediately. The feasibility of mobile or traveling educational classrooms and shops was investigated as part of this study. The use of such facilities in Arkansas had been recommended on an experimental basis in a 1967 report prepared by the University of Nevada, titled, A Feasibility Study-Utilization of Mobile Facilities for the Development of Entry Work Skills for Arkansas' Rural Unemployed and Low Income Earners. In that study, as in this study, it was found that many communities and states are now or will be bringing vocational instruction and basic literacy education programs to youths and adults in rural areas as well as in urban ghettoes. These traveling educational facilities are designed for specific purposes. For example, one type of unit is designed as a science laboratory. It includes a planetarium and lecture room, accommodating a total of 24 students at a time. Another type is designed and equipped as a traveling library and speech therapy center. A third type is equipped for training in office equipment operation. There are types designed for Industrial Arts Education programs, for conducting various types of guidance and counseling tests, for basic education programs, and many other special purposes. There appears to be no end to the possible uses of mobile traveling educational units designed to meet specific educational and training needs.

An AVID Corporation representative, Travelab Division, presented a demonstration about various types of mobile traveling classrooms and laboratories at meetings of two Regional Manpower Advisory Councils for Economic Development. In a letter, dated November 22, 1968 to the consultant for this study, he stated:

> "I am enclosing information on our Guidance Counseling Center, as well as a blueprint floor plan of the same. This center contains the basic facilities for doing individual counseling and testing. You will notice, for instance, that it has tape decks built into the drawers and semi-hidden microphones so that counselees may be recorded and counseling sessions played back to analyze particular problems. There is ample space for

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[12] Effective Vocational Education Programs for Disadvantaged Secondary Level Students, Social, Educational Research and Development, Inc., Silver Spring, Maryland, September 30, 1968, p. 10.

> storage of tests, books, booklets, audio visual material, and any special equipment. Naturally, any variation on this unit can be made. When this unit is being used there is generally a specialist, for instance a testing person, who is assigned to the unit and quite often drives it. He then works with and supplements the local counselors, and provides them with his unit and his specialty, for example testing. The unit is quite versatile and is self-propelled, fully carpeted, heated, air-conditioned and meets the basic requirements of a counseling center. The unit is built using our rugged Monocoque construction, and I feel that it would be quite suitable for the needs we discussed in the Northwestern section of Arkansas. After reviewing this information, if it seems this, or something close to it would meet their needs, please let me know and we will be happy to send them more information. Incidentally, the unit sells for $19,886.00.
>
> "One of the areas to which we have been very successful is our elementary Industrial Arts lab. This unit would sell for $18,100.00 and is fully equipped with all types of hand and art tools. Where it is being used, it has tied in with a program for under-achieving students. These students receive instruction for one hour and a half each week on the basic industrial skills and this all ties in to a guidance program in which they explore with these students opportunities at later grade levels to get into programs which would be directly related to vocational training and job opportunities after high school. This has proven to be most successful."

Conversation between the Travelab representative and the Director of Industry Services for the State Department of Education have resulted in submission of a preliminary design of an Industrial Arts Mobile Unit for use in rural sections of Arkansas. Also, the Travelab representative has been investigating the possibility of designing a basic literacy training unit utilizing the "Talking Typewriter" and "Talking Page" of Responsive Environments Corporation (REC). At the same time, REC, at the suggestion of the State Department of Education is investigating the use of a mobile facility equipped with their units. It can be assumed that when the equipment manufacturers have submitted a detailed plan and program, the State Department of Education will take some initiative in this matter.

Funds for utilizing mobile traveling facilities as described above are available from both the Federal government (as an innovative or experimental and demonstration project for the education and training of disadvantaged individuals), and from the Educational Facilities Laboratory, New York City. This latter organization funded the University of Nevada feasibility study of mobile units for Arkansas, and is willing to provide substantial funds to an experimental program. However, assurance must be provided that the State Department of Education will assign a full-time staff member and/or a task force to plan, conduct and evaluate the utilization of the mobile units. It is believed that the experimental project should involve at least one unit equipped for basic education instruction, and another unit for combined basic instruction in machine shop and electricity.

It is interesting to note at this point that the University of Arkansas has received a $200,000 grant, and is expecting another $160,000 to develop programs of adult basic education in a number of communities throughout the State. Each of these communities has economic growth potential and therefore could employ adults who are at an eighth grade literacy level. Since it is estimated that over 300,000 adults in Arkansas have less than an eighth grade level of education, and these numbers continue to grow, there is an urgent need to provide basic adult education programs. The project director of the University of Arkansas, Mr. E. T. Sheffield, is considering the possibilities of a mobile traveling educational facility.

APPENDIX

STATISTICS AND OTHER INFORMATION ON VOCATIONAL-TECHNICAL EDUCATION PROGRAMS IN ARKANSAS

APPENDIX
TABLE I

FULL-TIME STUDENT ENROLLMENTS - 1968

		Enrollments		
Item	Program	Secondary Schools	Post-Secondary Schools	Total
1	Office and Business	406***	1,144	1,550
2	Distributive	1,064*	19*	1,083
3	Trades and Industry	1,585**	2,764	4,349
4	Health	92*	589	681
5	Technical	184	331	515
6	Home Economics-Gainful	82	30	112
7	(Subtotal)	(3,413)	(4,877)	(8,280)
8	Agriculture	18,490****	74	18,506
9	Homemaking	28,570		28,570
10	Total	50,415	4,951	55,366

*About two-thirds of these students in cooperative programs.

**Approximately 20 percent of students are estimated to be in cooperative programs.

***An additional 40,000 students are estimated as enrolled in typing and other business courses (1 hour per day each day) for which Federal reimbursement is not received.

****Fifty-eight students in Agriculture related cooperative programs.

Source: Arkansas State Department of Education.

APPENDIX
TABLE II

FULL-TIME STUDENTS COMPLETING PROGRAMS AND IN LABOR FORCE
School Year 1968

	Completions			In Labor Force							
				Total				Employed in Occupation or Related Occupation For Which Trained			
				Secondary Schools		Post-Secondary Schools		Secondary Schools		Post-Secondary Schools	
Program	Secondary Schools	Post-Secondary Schools	Total	No.	Percent of Col. 2	No.	Percent of Col. 3	No.	Percent of Col. 5	No.	Percent of Col. 7
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Agriculture	2,767	23	2,790	1,189	43	23	100	1,008	84	23	100
Distributive	545		545	260	47			200	80		
Health	60	349	409	32	53	337	96	25	80	330	97
Home Economics (wage earning only)	64		64	19	30			19	100		
Office	359	499	858	194	54	360	72	137	70	320	89
Technical	42	152	194	9	21	41	27	9	100	33	80
Trades and Industry	664	684	1,348	329	49	451	65	260	80	398	88
Total	4,501	1,707	6,208	2,032	45	1,212	71	1,657	81	1,104	91

Note: Left before normal completion time, but with marketable skills.
From Secondary Schools - 241.
From Post-Secondary Schools - 331.

Source: Arkansas State Department of Education.

APPENDIX

TABLE III

COMPARISON OF ESTIMATED ANNUAL AVERAGE MANPOWER NEEDS BY MAJOR OCCUPATIONAL GROUPS WITH ANNUAL AVAILABLE VOCATIONAL AND TECHNICAL SCHOOL GRADUATES AND ADULT PREPARATORY ENROLLMENTS

Line	Occupation	Average Annual Manpower Needs 1965-1975[1]	Graduates[2]	Adult Enrollments in Preparatory Courses Including Special Needs Persons, But Not Including Supplementary Training Courses(2)(10)	Total[2]	Annual Deficit of Graduate and Adult Preparatory Enrollments
1	Professional and Technical Workers[3]	3,644				
2	Managers, Officials and Proprietors[3]	2,894				
3	Clerical Workers	3,887	858	1,685	2,543	1,344
4	Sales Workers	2,319	545	319	864	1,455
5	Craftsmen and Foremen	4,265				
6	Operatives	7,538	1,499[5]	503[7]	2,002	9,801
7	Laborers, except farm	1,274[3]				
8	Service Workers	4,148	651[6]	460	1,111	3,037
9	Farmers and Farm workers	1,500[4]	2,790	452[8]	3,242	(+1,742)
10	Total	23,657[3]	6,343[9]	3,419	9,762	13,895

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[1] Compiled by the Industrial Research and Extension Center, University of Arkansas.

[2] Compiled by the Arkansas State Department of Education.

[3] Line 7 not included in total since secondary and post-secondary school graduates do not usually enter the labor market as Laborers. Lines 1 and 2 not included in total because of difficulty in matching school graduates with the figures supplied for these two occupational groupings. If all figures in column 1 were added, the estimated annual average manpower needs in all occupations would be 29,715.

[4] This figure is the annual manpower replacement needs rather than -254 which is the net deficit figure based on declining needs of agricultural occupations.

[5] Includes 194 graduates from technical type programs. Lines 5 and 6 are combined for school programs because reporting from the schools does not permit details for these two lines.

[6] Includes health occupations and gainful home economics occupations.

[7] It should be noted that 1,252 adults in the occupational field were provided courses in Foremanship Development; full-time students were not provided such courses.

[8] Supplementary Agriculture education courses were provided to 9,846 adults.

[9] There is a discrepancy of 135 in this total from the total in Table II, column 4, because the figures for Table III were taken from a different series of reports prepared by the Arkansas State Department of Education. The difference is considered too minor to warrant additional research.

[10] Note that this column lists enrollments rather than graduates. The assumption is made that most of the adults in preparatory vocational programs will enter the labor force in the major occupational area for which prepared.

APPENDIX
TABLE III-A

TRAINED MANPOWER NEEDS AND SUGGESTED LEVEL OF VOCATIONAL EDUCATION PROGRAMS FOR ENTRY LEVEL SKILLS
1965-1975

Major Occupational Group and Job Classification	Average Annual		Suggested Educational and/or Training Programs to Prepare for Job	
	Manpower Needs Through 1975 (See Table III)	School Program Deficit (See Table III)	High School[1]	Post High School
Clerical and Kindred Workers	3.887	1,344		
Stenographers, secretaries, typists, accounting clerks, bookkeepers	1,361			
Bank tellers, cashiers, mail carriers, postal clerks, shipping and receiving clerks, others	2,526			
Sales Workers	2,319	1,455		
Insurance agents and brokers, real estate agents and brokers	281			
Other sales workers	2,038			
Laborers, except Farm and Mine	1,274			
Farmers and Farm Workers	-254	(+1,742)[2]		A small number for technical level jobs
Craftsmen, Foremen and Kindred Workers	4,265	9,801[3]		
Construction workers	1,256		4	4
Foremen	630			
Metalworking craftsmen	188		4	4
Mechanics and repairmen	1,506		4	4
Printing trades craftsmen	76		4	4

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APPENDIX

TABLE III-A
TRAINED MANPOWER NEEDS AND SUGGESTED LEVEL OF VOCATIONAL . . . - (Continued.)

Major Occupational Group and Job Classification	Average Annual		Suggested Educational and/or Training Programs to Prepare for Job	
	Manpower Needs Through 1975 (See Table III)	School Program Deficit (See Table III)	High School	Post High School
Craftsmen, Foremen and Kindred Workers - (continued.)				
Transportation and public				(4)(5)
utilities craftsmen	124			4
Jewelers and watchmakers	16			4
Opticians and lens grinders	2		4	
Upholsters	70		4	
Others	397			
Operatives and Kindred Workers	7,538	See Above^{3}	Great majority (approximately 1,500)	Small Number
Transportation and utility workers	1,899			
Semi-skilled metalworking occupations				
Assemblers, heaters, welders,			4	4
inspectors	512		4	4
Machine tool operators	99		4	
Others	18			
Semi-skilled textile occupations			Great majority with few in special programs; many probably do not need high school graduation	
Sewers and stitchers	309			
Others	9			
Other operators	4,792			
Service Workers	4,148	3,037		
Protective Services (firemen, policemen and guards)	279			

- continued -

APPENDIX

TABLE III-A

TRAINED MANPOWER NEEDS AND SUGGESTED LEVEL OF VOCATIONAL . . . - (Continued.)

Major Occupational Group and Job Classification	Average Annual Manpower Needs Through 1975 (See Table III)	Average Annual School Program Deficit (See Table III)	Suggested Educational and/or Training Programs to Prepare for Jobs: High School	Suggested Educational and/or Training Programs to Prepare for Jobs: Post-High School
Service Workers - (continued.)				
Household workers	978		Does not need high school graduation	
Waiters, cooks, bartenders				
Cooks	467			
Others	580			
Others				
Practical nurses	193			6
Others	1,651		Great majority	

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[1] Orientation to world-of-work, cooperative work-study, or vocational and/or Industrial Arts shops, could include supplementary, adult education courses related to the job.

[2] This figure was arrived at by using the annual estimated replacement manpower needs instead of expansion plus replacement needs. There is estimated an actual decline in farm employment.

[3] This figure also includes deficit for Operatives and Kindred Workers (See Table III).

[4] Depending on level of skill which employers require, and wages they are willing to pay in consideration of schooling prior to job entry. (See Table III).

[5] Linemen and servicemen primarily. (See Table III).

[6] Many secondary schools throughout the Nation conduct courses for Practical Nurses. Upon graduation, they are old enough to take State Board exams. In Arkansas, Practical Nurse programs are offered only at the post-secondary school level.

APPENDIX
TABLE III-B

ANNUAL ESTIMATED TRAINED MANPOWER NEEDS BY MAJOR OCCUPATIONAL GROUPS, LEVEL OF SCHOOLING AND GRADUATES PROVIDED BY SCHOOLS

Occupational Group	Total Needed (See Table III)	Numbers Needed According to School Level (See Table III-A)		Total Number of Graduates From Schools Including Adult Preparatory Enrollees (See Table III)	Annual Deficit of School Graduates and Adult Preparatory Enrollments
		High School	Post - High School		
Clerical and kindred workers	3,887	2,457[1]	1,430[1]	2,543[1]	1,344[1]
Sales workers	2,319	2,027	292[2]	864	1,455[2]
Craftsmen, foremen, and kindred workers	4,265	1,675	2,590	2,002	9,801
Operatives and kindred workers	7,538	6,449	1,089		
Service workers	4,148	3,345	803	1,111	3,037
Total	22,157	15,953	6,204	6,520	15,637[3]

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[1] As most high schools in Arkansas offer courses in business education, this need can be met through present high school enrollments, since the number of school graduates reported includes only those in classes subsidized by Federal funds (359 total graduates). Also, since a number of private business schools exist at the post-high school level, and courses are offered at junior colleges as well as State Vocational-Technical area schools, it is doubtful that there is a need for any major expansion of business education programs, except for new programs at the junior college 2-year level.

[2] Major expansion in this program would be at high school level. The post-high school programs would be offered by junior colleges.

[3] Note that this total figure does not include Clerical and Kindred Workers, nor Agricultural Workers.

APPENDIX
TABLE III-C

ESTIMATED AVERAGE ANNUAL MANPOWER NEEDS AND SCHOOL GRADUATES IN SELECTED OCCUPATIONS

Occupations	Estimated Annual Needs (See Table III-A)	School Graduates 1968[1]
Machine Trades	238	200
Tool operators, Class B	122	
Skilled machinery workers	102	
Toolmakers, die makers and setters	14	
Metalworking	409	353
Assemblers, Class A Assemblers, Class B	173	
Inspectors, Class B	54	
Welders and flame cutters	122	
Motor vehicle mechanics	351	354
Radio and TV mechanics	50	195
Printing trades craftsmen	88	101
Practical nurses	213	409

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[1] Compiled by the Arkansas State Department of Education--includes graduates from high schools, post-high schools, and enrolled adults in preparatory courses.

APPENDIX
TABLE IV

INSTRUCTIONAL EXPENDITURES FOR FEDERALLY REIMBURSED VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS
1968

Program	School Level	Source and Amount of Funds			
		State	Local	Federal	Total
Office and Business	Secondary		79,576	76,638	158,214
	Post-Secondary	132,053		130,776	262,829
Distributive	Secondary		87,059	60,817	147,876
	Post-Secondary	1,725	4,387	10,873	16,985
Trades and Industry	Secondary	7,738	235,237	198,078	441,053
	Post-Secondary	410,274	9,723	419,997	839,994
Health	Secondary		1,500	1,500	3,012
	Post-Secondary	127,130	17,253	178,923	323,306
Technical	Secondary	2,074	16,170	16,346	34,590
	Post-Secondary	132,613	13,345	145,958	291,916
Home Economics Gainful	Secondary		1,130		2,260
	Post-Secondary	13,671		13,671	27,342
Agriculture	Secondary	178,755	1,101,705	531,606	1,812,066
	Post-Secondary	14,233		14,231	28,463
Homemaking	Secondary	596,201	1,328,478	59,681	1,984,360
	Post-Secondary				

Source: Arkansas State Department of Education.

APPENDIX
TABLE V

AVERAGE FIXED ASSETS AND ANNUAL AVERAGE OPERATING EXPENDITURES OF A STATE AREA VOCATIONAL TECHNICAL SCHOOL

Fixed Assets:	
Land	$ 32,580
Building	332,006*
Equipment and furniture	262,369
Total	$626,955
Annual average total operating expenditures	$264,022
Average number of students per school	200
Estimated annual average operating expenditure per full-time student	$ 1,000**

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*Does not include estimated value of equipment on loan from Federal Government.

**Since evening students also attend the schools, an estimated adjustment was made.

Source: Estimated from reports submitted by Arkansas Area Vocational-Technical schools.

APPENDIX
TABLE VI

ESTIMATED NUMBER OF ANNUAL HIGH SCHOOL QUITS WHO WILL SEEK VOCATIONAL EDUCATION AND TRAINING IF AVAILABLE

1.	Number of annual high school graduates		25,000
2.	Less:		
	(a) College bound (40 percent)	10,000	
	(b) Neither college bound or labor force bound (20 percent)	5,000	15,000
3.	Number of high school graduates available for labor force or post-high school full-time programs other than 4-year college		10,000
4.	Less:		
	(a) High school graduates who enter labor force upon graduation (60 percent of No. 3.)		6,000
5.	High school graduates seeking post-high school education and training other than college		4,000
6.	Plus:		
	(a) 75 percent of annual high school quits (approximately 11,000 annually)		8,250
	(b) 50 percent of non-college or labor force bound from previous years (see line 2,b)		2,500
	(c) 25 percent of annual new college student enrollment who drop out (see line 2,a) and do not enter employment		2,500
7.	Net total of youths and adults for whom post-high school education and training of less than 4-year college should be provided (see Table VII)		17,250

Note: (All figures for Table VI and VII are estimates for 1968, either provided by Arkansas State Department of Education or developed by Upjohn Institute and agreed to by the Arkansas State Department of Education.)

APPENDIX
TABLE VII

ESTIMATED POST-SECONDARY SCHOOL FULL-TIME ENROLLMENTS, STUDENT CAPACITY AND STUDENT COMPLETIONS IN VOCATIONAL AND TECHNICAL EDUCATION

1. Enrollment capacity of post-secondary schools for full-time students:		
(a) State Area Vocational-Technical Schools		2,260
(b) State Technical Institute (opened in 1968 with 150 students).		500
(c) Other types of schools		2,191
		4,951
2. Total post-secondary full-time student enrollment potential		
3. Number of high school quits who should have had or will need vocational education and training (see Table VI)	17,250	
4. Less: Estimated number who:		
(a) Enroll in private trade schools and pay tuition	3,000	
(b) Estimated enrollment capacity of Arkansas post-secondary schools for full-time students	4,951	
(c) Received some form of occupational education in high school	1,734*	9,685
5. Net annual deficit of vocational and technical education student capacity in secondary and post-secondary schools (to be compensated for at post-secondary level with present school system policies)		7,565

*Does not include business, home economics or agriculture education programs.

APPENDIX TABLE VIII

SHORTAGE OCCUPATIONS[*]

- Professional, Technical, Managerial
  - Engineers; Chemical, Industrial, Civil, Mechanical, Electrical:
    - Accountants
    - Chemists
    - Draftsmen
    - Registered nurses
    - Licensed practical nurses
    - Medical technicians
    - Time study analysts
    - Programmers
    - Electronic technicians
    - Teachers
    - Underwriters
    - Managers
    - Social workers
    - Counselors
    - Water pollution control operators

- Clerical and Sales
  - Bookkeepers and accounting clerks
  - Secretaries and stenographers
  - Salesmen
  - Shipping and receiving clerks
  - Insurance clerks, sales
  - Key punch operators

- Service
  - Cooks
  - Kitchen helpers
  - Waitresses
  - Dry cleaners, skilled
  - Nurses aides and hospital attendants
  - Building service
  - Meat cutters
  - Police work

- Farming, Fishery, Forestry
  - Farm equipment operators
  - Grounds keepers
  - Plant and vegetable farming

- Processing
  - Semiskilled and unskilled in processing food products
  - Cannery workers
  - Foremen and skilled workers

- Machine Trades
  - Machinists
  - Mechanics, auto, farm equipment, airplane

- General maintenance men
- Set-up men
- Tool and die makers
- Machine trades

- Bench work
  - Sewing machine operators
  - Television service (color)
  - Appliance service
  - Spray painters
  - Semiskilled and unskilled benchwork
  - Assemblers

- Structural work
  - Auto bodymen
  - Welders
  - Millwrights
  - Carpenters
  - Plumbers and pipefitters
  - Equipment operators
  - Electricians
  - Painters
  - Sheet metal work
  - Brick masons
  - Metal finishers

- Miscellaneous
  - Auto service station attendants
  - Packagers
  - Truck drivers
  - Material handlers
  - Graphic arts

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[*] Report of Cooperative Area Manpower Planning System (CAMPS) of Arkansas, Fiscal Year 1969 (p. 17).

Note: For the most part, this list appears to agree with the manpower projections of Industrial Research and Extension Center.

APPENDIX
TABLE IX

OCCUPATIONAL SURPLUSES

- Professional, Technical, Managerial - (none specific)
- Clerical and Sales
  - Key punch and tabulating machine operators
  - Miscellaneous machine operators
  - Secretaries and stenographers (low proficiency level)
  - General clerks
  - Sales clerks
  - Cashiers
- Service
  - Cosmetology
- Farming, Fishery, Forestry
  - Agricultural laborers
- Processing
  - Unskilled workers
- Machine Trades
  - Unskilled machine trades
- Benchwork
  - Assemblers
  - Sewing machine operators
- Structural Work
  - Construction laborers
  - Unskilled workers
- Miscellaneous
  - Unskilled workers - as truck drivers and material handlers

[*] Report of Cooperative Area Manpower Planning System (CAMPS) of Arkansas, Fiscal Year, 1969 (p. 18).

Note: For the most part this list appears to agree with the manpower projections of the Industrial Research and Extension Center.

APPENDIX
TABLE X

PROJECTED ENROLLMENTS, DROPOUTS AND GRADUATES
SELECTED YEARS 1964-1980

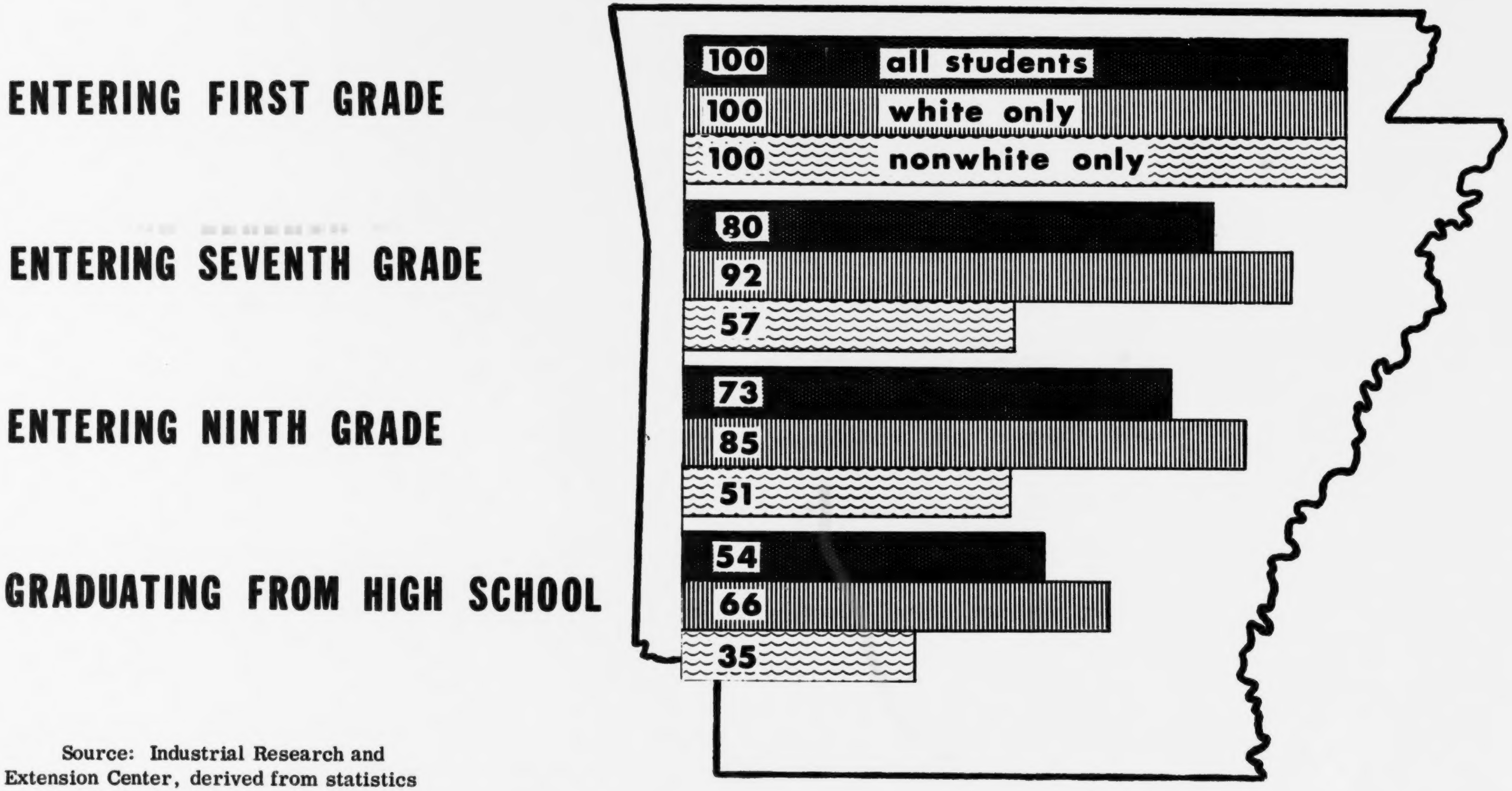
School Year	First Grade Enrollment	Eighth Grade Enrollment	High School Graduates	Dropouts Between First Grade and Graduation	Dropouts Between Eighth Grade and Graduation
1964-1965	45,640	37,000	25,394	20,246	11,606
1968-1969	46,640	38,311	25,390	21,250	12,921
1969-1970	46,890	36,258	26,059	20,831	10,199
1972-1973	47,658	38,273	26,517	21,141	11,756
1973-1974	48,150	38,574	24,744	23,406	13,830
1974-1975	48,400	38,824	28,380	20,020	10,444
1975-1976	48,650	36,771	28,981	19,669	7,790
1979-1980	49,910	37,087	28,192	21,718	8,895

Source: Arkansas State Department of Education.

APPENDIX
TABLE XI

ARKANSAS' EDUCATIONAL ATTAINMENT

CLASS OF 1967



Source: Industrial Research and Extension Center, derived from statistics supplied by the State Department of Education.

APPENDIX
TABLE XII

EDUCATIONAL INSTITUTIONS IN ARKANSAS OFFERING VOCATIONAL AND TECHNICAL EDUCATION PROGRAMS FOR WHICH STATE AND FEDERAL FUNDS ARE RECEIVED, 1968

Secondary Schools	City
Metropolitan High School	Little Rock
Sequoyah Polytechnic Area High	Fayetteville
Local School District Post-Secondary School	
Little Rock Vocational-Technical	Little Rock
Secondary Schools for the Handicapped	
Arkansas School for the Deaf	Little Rock
State Area Post-High Vocational-Technical Schools	
Arkansas Valley	Ozark
Cotton Boll	Burdette
Crowley's Ridge	Forrest City
Delta	Marked Tree
Foothills	Searcy
Oil Belt	El Dorado
Petit Jean	Morrilton
Pines	Pine Bluff
Red River	Hope
Twin Lakes	Harrison
State Technical Institute (residential) (2-year program)	
Southwest	East Camden
Junior and Community Colleges	
Phillips County Community College*	Helena
Westark Junior College*	Fort Smith
Colleges	
AM & N College*	Pine Bluff
Arkansas State University*	Beebe and Jonesboro
Henderson State College*	Arkadelphia
State College of Arkansas*	Conway
University of Arkansas*	Fayetteville

APPENDIX
TABLE XII
EDUCATIONAL INSTITUTIONS IN ARKANSAS . . . - (Continued.)

Colleges - (continued.)	City
Central Baptist College** (private)	Conway
Crowley's Ridge College** (private)	Paragould
Shorter Junior College** (private)	North Little Rock
Southern Baptist College** (private)	Walnut Ridge
Arkansas Polytechnic College**	Russellville
Southern State College**	Magnolia
Arkansas Agricultural and Mechanical College**	College Heights
Arkansas Baptist College** (private)	Little Rock
Arkansas College** (private)	Batesville
College of the Ozarks** (private)	Clarksville
Philander Smith College** (private)	Little Rock
Ouachita Baptist University** (private)	Arkadelphia
Little Rock University** (private)	Little Rock
John Brown University** (private)	Siloam Springs
Hendrix College** (private)	Conway
Harding College** (private)	Searcy

[*] Total State and Federal funds received for teacher training and instructional programs in vocational and technical education received for school year 1967-1968 - $307,592.27.

[**] These State schools and colleges offer vocational and technical education, but are either private schools or schools which receive only State funds for vocational and technical education programs.

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EVALUATION OF
ARKANSAS VOCATIONAL TRAINING PROGRAMS
IN RELATION TO
ECONOMIC DEVELOPMENT

PART III: EVALUATION OF PROGRAMS AND RECOMMENDATIONS

Prepared for the
ARKANSAS STATE DEPARTMENT OF EDUCATION

By the
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College of Business Administration
University of Arkansas

and the
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